

NEW WORLDS

— PROFILES —

James White

Belfast

Northern Ireland



It is unusual in science fiction for a story series by one author to be popular for any length of time, but James White's "Sector General" stories have broken this tradition. With four stories acclaimed so far, let us have a few words from the head Surgeon himself.

"The background idea for the "Sector General" series," writes James White, "is one that developed gradually over the years. I have always had a fondness for stories with a medical slant—my ambition is to write one as good as Lester del Rey's "Nerves"—and as it is always easier to do what one likes rather than otherwise, many of my leading characters have been doctors. To one with pacifist inclinations—feelings shared on both sides of the typewriter among the s-f fellowship, I think—a doctor character is important in that all sorts of violent, dramatic and emotionally loaded incidents happen around him as a matter of course. So an author who doesn't relish killing off a lot of people or things can inject some legitimate bloodshed into his stories by substituting an accident or natural catastrophe for War.

"From writing about doctors saving people I graduated to doctors saving things, and finally, in the Sector series, to things saving people. The first three stories had Dr. Conway solving various medical puzzles with the help of his serious-minded but sometimes wacky colleagues. But the hospital itself did not emerge clearly in these stories so the fourth one, "O'Mara's Orphan," was set at the time immediately preceding its establishment.

"The current one, "Out-Patient," shows Conway having to shoulder for the first time the full responsibility for a patient's treatment, and with a life-or-death decision to make.

"I don't know what the next one will be about—yet—but it will develop."

NEW WORLDS SCIENCE FICTION

No. 95

VOLUME 32

2/6

OUT-PATIENT

James White

CHRONOPOLIS

J. G. Ballard

SOLDIERS RUNNING

Brian W. Aldiss

**CREATURES,
INCORPORATED**

Larry Maddock

PURSUIT MISSILE

Philip E. High

Features

14th Year
of Publication



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JUNE 1960

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MONTHLY

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Editor : JOHN CARNELL

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TWO SHILLINGS AND SIXPENCE

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Easter . . .

While the 20,000 Nuclear Disarmament marchers from Aldermaston were approaching London, the Easter Sunday Parade of beautiful belles was parading in Battersea Gardens, and TAFF representative Don Ford from Ohio was photographing the orators at Hyde Park's Speakers' Corner, the members of the British Science Fiction Association were in session at their annual Convention choosing a President. The final choice fell between authors Brian W. Aldiss and Kenneth Bulmer, with the former narrowly defeating the latter for the honour; many delegates voting on the assumption that Brian Aldiss's name will be even higher up the literary tree in a year or two's time, thus bringing additional prestige to the Association.

A very astute assumption indeed.

This was only one of the many Easter Convention highlights and surprises. Biggest (and most nerve-wracking) was the fact that the original hotel, the Sandringham, at Lancaster Gate, cancelled the conference booking 48-hours beforehand, and the BSFA Committee were hard put to find other suitable accommodation in time. However, with the wholehearted co-operation of the Paddington Chamber of Commerce (who felt personally responsible that one of the hotels in their borough had let the Association down) adequate and much better facilities were quickly made at the Kingsley Hotel, Bloomsbury, W.C.1 not far removed from the sites of the 1951, 1952 and 1953 conferences.

Some seventy delegates were in attendance at all sessions, which took place in a tastefully (s-f) decorated hall lined with books, magazines and illustrations. Here the convention was officially opened on Saturday, April 16th by the Association Chairman, Dr. Arthur Weir, who introduced myself as one of the Guests of Honour, and in turn I introduced Don Ford the American Guest of Honour. Shortly after this the delegates received a further pleasant surprise with the unexpected arrival from New York of David A. Kyle, the 1957 World Convention Chairman.

The most significant session of the Conference, as far as I was concerned, was the main Saturday afternoon one opened by myself whereby I spoke about the changing face of science fiction, the need for encouraging and developing new writers, and the future of the short story as compared with the novel. This triggered off one of the liveliest debates I have had the

... Parade

pleasure of attending for a long time, with authors Brian Aldiss, Kenneth Bulmer, E. C. Tubb, John Rackham, expounding on their theories and feelings, and innumerable delegates asking pertinent questions and offering suggestions. Scheduled for 45 minutes, the discussion went on for two hours and had to be forcibly stopped in order to complete further programme items.

While nothing definite came from this debate—specifically for the Association, myself, or the authors to accomplish—much ground was covered generally; ground which has been debated in this magazine recently in both editorials and the *Postmortem* section, and it seems to me that while this lively enquiring mood is with us, verbally or in written form, there is little likelihood of science fiction dying or even passing into the phrase where it is known but not labelled as such.

Numerous other items of interest occurred during the two main days of the convention: a quiz show on science fiction with the three TAFF candidates for this year's trip to the World Convention at Pittsburgh on the panel; a humorous and vastly entertaining s-f take-off of the TV "This Is Your Life" programme; a magnificent colour-slide show by American Don Ford of events and people who have taken part in past American conferences; a performance of the pro film "The Day The Earth Stood Still,"; and the showing of a number of very entertaining 8mm colour films taken at various British and American conventions.

This latter hobby is becoming increasingly popular among science fiction readers, especially those attending conventions, and the showing of such films is narrowing the barriers between fans and readers living in different countries far more than the usual exchange of correspondence and tapes. London delegates saw all the highlights of the 1958 Los Angeles convention, including most of the professional American authors who attended that meeting and some unique shots of a fabulous "Fashions of the Future" parade.

Yes, Conventions are great fun as well as being constructively critical.

Incidentally, there will be a small social Convention over Whitsun at the "George" Hotel, Kettering, Northants, (no official programme) May 7-9, if you are interested. Book direct with the hotel.

John Carnell

A "Sector General" Story

Dr. Conway, now promoted to the post of a Senior Physician on Sector Twelve General Hospital out in space, calls in his old friend Dr. Prilicla (whom we met in "Trouble With Emily" in No. 77) to help solve the problem of a dying alien who didn't want to be cured.

OUT-PATIENT

by JAMES WHITE

o n e

The Monitor Corps cruiser *Sheldon* flicked into normal space some five hundred miles from Sector Twelve General Hospital, the wreck which was its reason for coming held gently against the hull within the field of its hyperdrive generators. At this distance the vast, brilliantly lit structure which floated in interstellar space at the galactic rim was only a dim blur of light, but that was because the Monitor Captain had had a close decision to make. Buried somewhere inside the wreck which he had brought in was a survivor urgently in need of medical attention. But like any good policeman his actions were constrained by possible effects on innocent bystanders—in this case the Staff and patients of the Galaxy's largest multi-environment hospital.

Hurriedly contacting Reception he explained the situation, and received their reassurances that the matter would be taken care of at once. Now that the welfare of the survivor was in

competent hands, the Captain decided that he could return with a clear conscience to his examination of the wreck, the wreck which just might blow up in his face at any moment.

In the office of the hospital's Chief Psychologist, Dr. Conway sat uneasily on a very easy chair and watched the square, craggy features of O'Mara across an expanse of cluttered desk. Conway had been in Major O'Mara's office many times, for reassignment or to take Educator tapes mostly, but a peremptory summons over the PA could mean *anything* . . .

"Relax, Doctor," O'Mara said suddenly, obviously reading his thoughts. "If you were here for a carpeting I'd have given you a harder chair. On the contrary, I've been instructed to administer a hefty pat on the back. You've been up-graded, Doctor. Congratulations. You are now, Heaven help us all, a Senior Physician."

Before Conway could react to the news, the psychologist held up a large, square hand.

"In my own opinion a ghastly mistake has been made," he went on. "But seemingly your success with that dissolving SRTT and your part in the levitating dinosaur business has impressed the people upstairs—they think it was due to ability instead of sheer luck.

"As for me," he ended, grinning, "I wouldn't trust you with my appendix."

"You're too kind, sir," said Conway drily.

O'Mara smiled again. "What do you expect, praise or something? My job is to shrink heads, not swell 'em—you forget that. And now I suppose I'll have to give you a minute to adjust to the thought of your new glory . . ."

Conway was not slow in appreciating what this advance in status was going to mean to him. It pleased him, definitely—he had expected to do another two years before making Senior Physician. But he was a little frightened, too.

Henceforth he would wear an arm-band trimmed with red, have the right-of-way in corridors and dining halls over everyone other than fellow Seniors and Diagnosticians, and all the equipment or assistance he might need would be his for the asking. He would bear full responsibility for any patient left in his charge, with no possibility of ducking it or passing the buck up. His personal freedom, on the other hand, would be more constrained. He would have to lecture nurses, train

junior interns, and almost certainly take part in one of the long-term research programmes. These duties would necessitate him being in permanent possession of at least one physiology tape, more probably two.

That side of it, he knew, was not going to be pleasant.

No single being could hope to hold in his brain all the physiological data necessary for the treatment of patients in a multi-environment hospital. Sector General comprised three hundred and eighty-four levels in which were accurately reproduced the environments of the sixty-eight different forms of intelligent life currently known to the Galactic Federation. There were high and low temperature life-forms, water-, chlorine- or oxygen-breathers, those who existed by the direct conversion of hard radiation, and practically every conceivable combination in between. The incredible mass of knowledge needed to take care of them had to be furnished by means of Educator tapes, which were simply the brain records of the great medical specialists of the various species concerned. If an Earth-human doctor had to treat a Kelgian patient, he took one of the DBLF physiology tapes until treatment was completed, after which it was erased.

Senior Physicians with permanent teaching duties, however, were called on to retain one or two of these tapes continuously. That, Conway had heard, was no fun at all. The only thing which could be said for it was that he would be better off than a Diagnostician.

They were the hospital's *elite*. A Diagnostician was one of the rare beings whose mind was considered stable enough to retain permanently six, seven or even ten Educator tapes simultaneously. To their data-crammed minds were given the job of original research in xenological medicine, and the diagnosis and treatment of new diseases in the hitherto unknown life-forms.

There was a well-known saying in the hospital, reputed to have originated with the Chief Psychologist himself, that anyone sane enough to want to be a Diagnostician was mad.

For it was not only physiological data which the Educator tapes imparted, but the complete memory and personality of the entity who had possessed that knowledge was impressed on their brains as well. In effect a Diagnostician subjected himself or itself voluntarily to the most drastic form of multiple schizophrenia . . .

Suddenly O'Mara's voice broke in on his thoughts. "... And now that you feel three feet taller and are no doubt rarin' to go," the psychologist said in a business-like tone, "I have a job for you. A wreck has been brought in which contains a survivor, and apparently the usual procedures for extricating it cannot be used. Physiological classification unknown—we haven't been able to identify the ship so have no idea what it eats, breathes or looks like. I want you to go over there and sort things out, with a view to transferring the being here as quickly as possible for treatment.

"We're told that its movements inside the wreckage are growing weaker," he ended briskly, "so treat the matter as urgent."

"Yes, sir," said Conway, rising quickly. At the door he paused. Later he was to wonder at his temerity in saying what he did to the Chief Psychologist, and decided that promotion must have gone to his head. As a parting shot he said exultantly, "I've *got* your lousy appendix. Kellerman took it out three years ago. He pickled it and put it up as a chess trophy. It's on my bookcase . . ."

O'Mara's only reaction was to incline his head, as if receiving a compliment.

Outside in the corridor Conway went to the nearest communicator and called Transport. He said, "This is Dr. Conway. I have an urgent out-patient case and need a tender. Also a nurse able to use an analyser and with experience of fishing people out of wrecks, if possible. I'll be at Admission Lock Eight in a few minutes . . ."

Conway made good time to the lock, all things considered. Once he had to flatten himself against a corridor wall as a Tralthan Diagnostician lumbered absently past on its six, elephantine feet, the diminutive and nearly mindless OTSB life-form which lived in symbiosis with it clinging to its leathery back. Conway didn't mind giving way to a Diagnostician, and as well the Tralthan FGLI-OTSB combination were the finest surgeons in the Galaxy. Generally, however, the people he encountered—nurses of the DBLF classification mostly, and a few of the low-gravity, bird-like LSVO's—made way for him. Which showed what a very efficient grape-vine the hospital possessed, because he was still wearing his old arm-band.

His swelling head was rapidly shrunk back to size by the entity waiting for him at Lock Eight. It was another of the

furry, multi-pedal DBLF nurses, and it began hooting and whining immediately he came into sight. The DBLF's own language was unintelligible, but Conway's Translator pack converted the sounds which it made—as it did all the other grunts, chirps and gobblings heard in the hospital—into English.

"I have been awaiting you for over seven minutes," it said. "They told me this was an emergency, yet I find you ambling along as if you had all the time in the world . . ."

Like all Translated speech the words had been flat and strained free of all emotional content. So the DBLF *could* have been joking, or half joking, or even making a simple statement of facts as it saw them with no disrespect intended. Conway doubted the last very strongly, but knew that losing his temper at this stage would be futile.

He took a deep breath and said, "I might have shortened your waiting period if I had run all the way. But I am against running for the reason that undue haste in a being in my position gives a bad impression—people tend to think I am in a panic over something and so feel unsure of my capabilities.

"So for the record," he ended drily, "I wasn't ambling, I was walking with a confident, unhurried tread."

The sound which the DBLF made in reply was not Translatable.

Conway went through the boarding tube ahead of the nurse, and seconds later they shot away from the lock. In the tender's rear vision screen the sprawling mass of lights which was Sector General began to crawl together and shrink, and Conway started worrying.

This was not the first time he had been called to a wreck, and he knew the drill. But suddenly it was brought home to him that he would be solely responsible for what was to happen—he couldn't scream for help if something went wrong. Not that he had ever done that, but it had been comforting to know that he could have done so if necessary. He had an urgent desire to share some of his newly-acquired responsibility with someone—Dr. Prilicla, for instance, the gentle, spidery, emotion-sensitive who had been his assistant in the Nursery, or any of his other human and non-human colleagues.

During the trip to the wreck the DBLF, who told him that its name was Kursedd, tried Conway's patience sorely. The nurse was completely without tact, and although Conway knew the reason for this failing, it was still a little hard to take.

As a race Kursedd's species were not telepathic, but among themselves they could read each other's thoughts with a high degree of accuracy by the observation of expression. With four extensible eyes, two hearing antenna, a coat of fur which could lie silky smooth or stick out in spikes like a newly-bathed dog, plus various other highly flexible and expressive features—all of which they had very little control over—it was understandable that this caterpillar-like race had never learned diplomacy. Invariably they said exactly what they thought, because to another member of their race those thoughts were already plain anyhow, so that saying something different would have been stupid.

Then all at once they were sliding up to the Monitor cruiser and the wreck which hung beside it.

Apart from the bright orange colouring it looked pretty much like any other wreck he had seen, Conway thought; ships resembled people in that respect—a violent end stripped them of all individuality. He directed Kursedd to circle a few times, and moved to the forward observation panel.

At close range the internal structure of the wreck was revealed by the mishap which had practically sheered it in two, it was of dark and fairly normal-looking metal, so that the garish colouration of the hull must be due simply to paint. Conway filed that datum away carefully in his mind, because the shade of paint a being used could give an accurate guide to the range of its visual equipment, and the opacity or otherwise of its atmosphere. A few minutes later he decided that nothing further could be abstracted from an external examination of the ship, and signalled Kursedd to lock on to *Sheldon*.

The lock antechamber of the cruiser was small and made even more cramped by the crowd of green-uniformed Corpsmen staring, discussing and cautiously poking at an odd-looking mechanism—obviously something salvaged from the wreck—which was lying on the deck. The compartment buzzed with the technical jargon of half a dozen specialities and nobody paid any attention to the doctor and nurse until Conway cleared his throat loudly twice. Then an officer with Major's insignia, a thin-faced, greying man, detached himself from the crowd and came towards them.

"Summerfield, Captain," he said crisply, giving the thing on the floor a fond backward glance as he spoke. "You. I take it, will be the high-powered medical types from the hospital?"

Conway felt irritated. He could understand these people's feelings, of course—a wrecked interstellar ship belonging to an unknown alien culture was a rare find indeed, a technological treasure trove on whose value no limit could be set. But Conway's mind was oriented differently; alien artifacts came a long way second in importance to the study, investigation and eventual restoration of alien life. That was why he got right down to business.

"Captain Summerfield," he said sharply, "we must ascertain and reproduce this survivor's living conditions as quickly as possible, both at the hospital and in the tender which will take it there. Could we have someone to show us over the wreck please. A fairly responsible officer, if possible, with a knowledge of—"

"Surely," Summerfield interrupted. He looked as if he was going to say something else, then he shrugged, turned, and barked, "Hendricks!" A Lieutenant wearing the bottom half of a spacesuit and a rather harrassed expression joined them. The Captain performed brief introductions, then returned to the enigma on the floor.

Hendricks said, "We'll need heavy duty suits. I can fit you Dr. Conway, but Dr. Kursedd is a DBLF . . ."

"There is no problem," Kursedd put in. "I have a suit in the tender. Give me five minutes."

The nurse wheeled and undulated towards the airlock, its fur rising and falling in slow waves which ran from the sparse hair at its neck to the bushier growth on the tail. Conway had been on the point of correcting Hendrick's mistake regarding Kursedd's status, but he suddenly realised that being called 'Doctor' had elicited an intense emotional response from the DBLF—that rippling fur was certainly an expression of *something*! Not being a DBLF himself Conway could not tell whether the expression registered was one of pleasure or pride at being mistaken for a Doctor, or if the being was simply laughing one of its thirty-four legs off at the error. It wasn't a vital matter, so Conway decided to say nothing.

t w o

The next occasion that Hendricks addressed 'Doctor' Kursedd was when they were entering the wreck, but this time the DBLF's expression was hidden by the casing of its spacesuit.

"What happened here?" Conway asked as he looked around curiously. "Accident, collision, or what?"

"Our theory," Lieutenant Hendricks replied, "is that one of the two pairs of generators which maintained the ship in hyperspace during faster-than-light velocities failed for some reason. One half of the vessel was suddenly returned to normal space, which automatically meant that it was braked to a velocity far below that of light. The result was that the ship was ripped in two.

"The section containing the faulty generators was left behind," Hendricks went on, "because after the accident the remaining pair of generators must have remained functional for a second or so. Various safety devices must have gone into operation to seal off the damage, but the shock had practically shaken the whole ship to pieces so they weren't very successful. But an automatic distress signal was emitted which we were fortunate enough to hear, and obviously there is still pressure somewhere inside because we heard the survivor moving about.

"But the thing I can't help wondering about," he ended soberly, "is the condition of the other half of the wreck. It didn't, or couldn't, send out a distress signal or we would have heard it also. Someone might have survived in that section, too."

"A pity if they did," said Conway, then in a firmer voice; "But we're going to save this one. How do I get close to it?"

Hendricks checked their suit's anti-gravity belts and air tanks, then said, "You can't, at least not for some time. Follow me and I'll show you why."

O'Mara had made reference to difficulties in reaching the alien, Conway remembered, and he had assumed it was the normal trouble of wreckage blocking the way. But from the competent look of this Lieutenant in particular and the known efficiency of the Corps in general, he was sure that their troubles would not be ordinary.

Yet when they penetrated farther into the wreck the ship's interior seemed remarkably clear. There was the usual loose

stuff floating about, but no solid blockage. It was only when Conway looked closely at his surroundings that he was able to see the full extent of the damage. There was not one fitting, wall support or section of plating which was not either loose, cracked or sprung at the seams. And at the other end of the compartment they had just entered he could see where a heavy door had been burned through, with traces of the rapid-sealing goo used in setting up a temporary airlock showing all around it.

"That is our problem," Hendricks said as Conway looked questioningly at him. "The disaster very nearly shook the ship apart. If we weren't in weightless conditions it would fall to pieces around us."

He broke off to go to the aid of Kursedd, who was having trouble getting through the hole in the door, then resumed, "All the airtight doors must have closed automatically, but with the ship in this condition the fact of an airtight door being closed does not necessarily mean that there is pressure on the other side of it. And while we think we have figured out the manual controls, we cannot be absolutely sure that opening one by this method will not cause every other door in the ship to open at the same time, with lethal results for the survivor."

In Conway's phones there was the sound of a short, heavy sigh, then the Lieutenant went on ;

"We've been forced to set up locks outside every bulkhead we came to so that if there *should* be an atmosphere on the other side when we burn through, the pressure drop will be only fractional. But it's a very time-wasting business, and no short cuts are possible which would not risk the safety of the alien."

"Surely more rescue teams would be the answer," Conway said. "If there aren't enough on your ship we can bring them from the hospital. That would cut down the time required—"

"No, Doctor !" Hendricks said emphatically. "Why do you think we parked five hundred miles out ? There is evidence of considerable power storage in this wreck and until we know exactly how and where, we have to go easy. We want to save the alien, you understand, but we don't want to blow it and ourselves up. Didn't they tell you about this at the hospital ?"

Conway shook his head. "Maybe they didn't want me to worry."

Hendricks laughed. "Neither do I. Seriously, the chance of a blow-up is vanishingly small providing we take proper precautions. But with men swarming all over the wreck, burning and pulling it apart, then it would be a near-certainty."

While the Lieutenant had been talking they passed through two other compartments and along a short corridor. Conway noticed that the interior of each room had a different colour scheme. The survivor's race, he thought, must have highly individual notions regarding interior decoration.

He said, "When do you expect to get through to it?"

This was a simple question which required a long, complicated answer, Hendricks explained ruefully. The alien had made its presence known by noise—or more accurately, by the vibrations set up in the fabric of the ship by its movements. But the condition of the wreck plus the fact that its movements were of irregular duration and weakening made it impossible to judge its position with certainty. They were cutting a way towards the centre of the wreck on the assumption that that was where an undamaged, airtight compartment was most likely to be. Also, they were missing any later movements it made, which might have given them a fix on its position, because of the noise and vibration set up by the rescue team.

Boiled down, the answer was between three and seven hours.

And after they made contact with it, thought Conway, he had to sample, analyse and reproduce its atmosphere, ascertain its pressure and gravity requirements, prepare it for transfer to the hospital and do whatever he could for its injuries until it could be treated properly.

"Far too long," said Conway, aghast. The survivor could not be expected, in its steadily weakening state, to survive indefinitely. "We'll have to prepare accommodation without actually seeing our patient—there's nothing else for it. Now this is what we'll do . . ."

Rapidly, Conway gave instruction for tearing up sections of floor plating so as to bare the artificial gravity grids beneath. This sort of thing was not in his line, he told Hendricks, but no doubt the Lieutenant could make a fair guess at their output. There was only one known way of neutralising gravity used by all the space-going races of the Galaxy; if the survivor's species had a different way of doing it then they might as well give up there and then.

"... The physical characteristics of any life-form," he went on to explain, "can be deduced from specimens of their food supply, the size and power demands of their artificial gravity grids, and air trapped in odd sections of piping. Enough data of this sort would enable us to reproduce its living conditions—"

"Some of the loose objects floating around must be food containers," Kursedd put in suddenly.

"That's the idea," Conway agreed. "But obtaining and analysing a sample of air must come first. That way we'll have a rough idea of its metabolism, which should help you to tell which cans hold paint and which syrup . . .!"

Seconds later the search to detect and isolate the wreck's air-supply system was under way. The quantity of plumbing in any compartment of a spaceship was necessarily large, Conway knew, but the amount of piping which ran through even the smallest rooms in this ship left him feeling astonished by its complexity. The sight caused a vague stirring at the back of his mind, but either his association centres were not working properly or the stimulus was too weak for him to make anything out of it.

Conway and the others were working on the assumption that if a compartment could be sealed by airtight bulkheads, then the pipelines supplying air to that section would be interrupted by cut-off valves where they entered and left it. The finding of a section of piping containing atmosphere was therefore only a matter of time. But the maze of plumbing all around them included control and power lines, some of which must still be live. So each section of piping had to be traced back until a break or other damage occurred which allowed them to identify it as *not* belonging to the air-supply system. It was a long, exhausting process of elimination, and Conway raged inwardly at this sheerly mechanical puzzle on whose quick solution depended his patient's life. Furiously he wished that the team cutting into the wreck would contact the survivor, just so he could go back to being a fairly capable doctor instead of acting like an engineer with ten thumbs.

Two hours slipped by and they had the possibilities narrowed down to a single heavy pipe which was obviously the outlet, and a thick bundle of metal tubing which just had to bring the air in.

Apparently there were seven air inlets !

"A being that needs seven different chemical . . ." began Hendricks, and lapsed into a baffled silence.

"Only one line carries the main constituent," Conway said. "The others must contain necessary trace elements or inert components, such as the nitrogen in our own air. If those regulator valves you can see on each tube had not closed when the compartment had lost pressure we could tell by the settings the proportions involved."

He spoke confidently, but Conway was not feeling that way. He had premonitions.

Kursedd moved forward. From its kit the nurse produced a small cutting torch, focussed the flame to a six-inch, incandescent needle, then gently brought it into contact with one of the seven inlet pipes. Conway moved closer, an open sample flask held at the ready.

Yellowish vapour spurted suddenly and Conway pounced. His flask now held little more than a slightly soft vacuum, but there was enough of the gas caught inside for analysis purposes. Kursedd attacked another section of tubing.

"Judging by sight alone I would say that is chlorine," the DBLF said as it worked. "And if chlorine is the main constituent of its atmosphere then a modified PVSJ ward could take the survivor."

"Somehow," said Conway, "I don't think it will be as simple as that."

He had barely finished speaking when a high-pressure jet of white vapour filled the room with fog. Kursedd jerked back instinctively, pulling the flame away from the holed pipe, and the vapour changed to a clear liquid which bubbled out to hang as shrinking, furiously steaming globes all around them. They looked and acted like water, Conway thought as he collected another sample.

With the third puncture the cutting flame, held momentarily in the jet of escaping gas, swelled and brightened visibly. That reaction was unmistakeable.

"Oxygen," said Kursedd, putting Conway's thoughts into words, "or a high oxygen content."

"The water doesn't bother me," Hendricks put in, "but chlorine and oxy is a pretty unbreathable mixture."

"I agree," said Conway. "Any being who breaths chlorine finds oxygen lethal in a matter of seconds, and vice versa. But one of the gases might form a very small percentage of the

whole, a mere trace. It is also possible that both gases are trace constituents and the main component hasn't turned up yet."

The four remaining lines were pierced and samples taken within a few minutes, during which Kursedd had obviously been pondering over Conway's statement. Just before it left for the tender and the analysis equipment therein the nurse paused.

"If these gases are in trace quantity only," it said in its toneless, Translated voice, "why are not all the trace and inert elements, even the oxydizer or its equivalent, pre-mixed and pumped in together as we and most other races do it? They all leave by one pipe."

Conway harrumphed. Precisely the same question had been bothering him, and he couldn't even begin to answer it. He said sharply, "Right now I want those samples analysed, get moving on that. Lieutenant Hendricks and I will try to work out the physical size and pressure requirements of the being."

"And don't worry," he ended drily, "all things will eventually become plain."

"Let us hope the answers come during curative surgery," Kursedd gave out as a parting shot, "and not at the post-mortem."

Without further urging Hendricks began lifting aside the buckled floor plating to get at the artificial gravity grids. Conway thought that he looked like a man who knew exactly what he was doing, so he left him to it and went looking for furniture.

t h r e e

This disaster had not been as other shipwrecks, where all movable objects together with a large number normally supposed to be immovable were lifted and hurled towards the point of impact. Here, instead, there had been a brief, savage shock which had disrupted the binding powers of practically every bolt, rivet and weld in the ship. Furniture, which was about the most easily damaged item in any ship, had suffered worst.

From a chair or bed could be told the shape, carriage and number of limbs of its user with fair accuracy, or if it possessed a hard tegument or required artificial padding for comfort. And a study of materials and design could give the gravity-pull

which the being considered normal. But Conway was dead out of luck.

Some of the bits and pieces floating weightless in every compartment were almost certainly furniture, but they were so thoroughly mixed together that it was like trying to make sense of the scrambled parts of sixteen jig-saw puzzles. He thought of calling O'Mara, then decided against it. The Major would not be interested in how well he wasn't getting on.

He was searching the ruins of what might have been a row of lockers, hoping wistfully to strike a bonanza in the shape of clothing or an e-t pin-up picture, when Kursedd called.

"The analysis is complete," the nurse reported. "There is nothing unusual about the samples when considered separately. As a mixture they would be lethal to any species possessing a respiratory system. Mix them any way you want, the result is a sludgy, poisonous mess."

"Be more explicit," said Conway sharply. "I want data, not opinions."

"As well as the gases already identified," Kursedd replied, "there is ammonia, CO₂, and two inerts. Together, and in any combination of which I can conceive, they form an atmosphere which is heavy, poisonous and highly opaque . . ."

"It can't be!" Conway snapped back. "You saw their interior paintwork, they used pastels a lot. Races living in an opaque atmosphere would not be sensitive to subtle variations of colour—"

"Doctor Conway," Hendricks' voice broke in apologetically, "I've finished checking that grid. So far as I can tell it's rigged to pull five Gs."

A pull of five times Earth-normal gravity meant a proportionately high atmospheric pressure. The being must breathe a thick, poisonous soup—but a clear soup, he added hastily to himself. And there were other more immediate, and perhaps deadly, implications as well.

To Hendricks he said quickly, "Tell the rescue team to watch their step—without slowing down, if possible. Any beastie living under five Gs is apt to have muscles, and people in the survivor's position have been known to run amuck."

"I see what you mean," said Hendricks worriedly, and signed off. Conway returned to Kursedd.

"You heard the Lieutenant's report," he resumed in a quieter voice. "Try combinations under high pressure. And remember, we want a *clear* atmosphere!"

There was a long pause, then: "Very well. But I must add that I dislike wasting time, even when I am ordered to do so."

For several seconds Conway practiced savage self restraint, until a click in his phones told him that the DBLF had broken contact. Then he said a few words which, even had they been subjected to the emotion-filtering process of Translation, would have left no doubt in any e-t's mind that he was angry.

But slowly his rage towards this stupid, conceited, downright impertinent nurse he had been given began to fade. Perhaps Kursedd wasn't stupid, no matter what else it might be. Suppose it was right about the opacity of that atmosphere, where did that leave them? The answer was with yet another piece of contradictory evidence.

The whole wreck was stuffed with contradictions, Conway thought wearily. The design and construction did not suggest a high-G species, yet the artificial gravity grids could produce up to five Gs. And the interior colour schemes pointed to a race possessing a visual range close to Conway's own. But the air they lived in, according to Kursedd, would need radar to see through. Not to mention a needlessly complex air-supply system and a bright orange outer hull . . .

For the twentieth time Conway tried to form a meaningful picture from the data at his disposal, in vain. Maybe if he attacked the problem from a different direction . . .

Abruptly he snapped on his radio's transmit switch and said, "Lieutenant Hendricks, will you connect me with the hospital, please. I want to talk to O'Mara. And I would like Captain Summerfield, yourself and Kursedd in on it, too. Can you arrange that?"

Hendricks made an affirmative noise and said, "Hang on a minute."

Interspersed by clicks, buzzes and bleeps, Conway heard the chopped-up voices of Hendricks, a Monitor radio officer on *Sheldon* calling up the hospital and requesting Summerfield to come to the radio room, and the flat, Translated tones of an e-t operator in the hospital itself. In a little under the stipulated minute the babble subsided and the stern, familiar voice of O'Mara barked, "Chief Psychologist here. Go ahead."

As briefly as possible Conway outlined the situation at the wreck, his lack of progress to date and the contradictory data they had uncovered. Then he went on, “. . . The rescue team is working towards the centre of the wreck because that is the most likely place for the survivor to be. But it may be in a pocket off to one side somewhere and we may have to search every compartment in the ship to be sure of finding it. This could take many days.

“The survivor,” he went on grimly, “if not already dead must be in a very bad way. We don’t have that much time.”

“You have a problem, Doctor. What are you going to do about it?”

“Well,” Conway replied evasively, “a more general picture of the situation might help. If Captain Summerfield could tell me about the finding of the wreck—its position, course, or any personal impressions he can remember. For instance, would the extension each way of its direction of flight help us find its planet of origin? That would solve—”

“I’m afraid not, Doctor,” Summerfield’s voice came in. “Sighting backwards we found that its course passed through a not too distant solar system. But this system had been mapped by us over a century previous and listed as a future possibility for colonisation, which as you know means that it was devoid of intelligent life. No race can rise from nothing to a spaceship technology in one hundred years, so the wreck could not have originated in that system.

“Extending the line forwards led nowhere—into intergalactic space, to be exact. In my opinion the accident **must** have caused a violent change in course, so that the wreck’s position and course when found will tell you nothing.”

“So much for that idea,” said Conway sadly, then in a more determined voice he went on, “but the other half of the wreck is out there somewhere. If we could find that, especially if it contained the body or bodies of other members of its crew, that would solve everything! I admit that it’s a roundabout way to do it, but judging by our present rate of progress it might be the fastest way.

“I want a search made for the other half of the wreck,” Conway ended, and waited for the storm to break.

Captain Summerfield demonstrated that he had the fastest reaction time by getting in the first blast.

“Impossible! You don’t know what you’re asking! It would take two hundred units or more—a whole Sector

sub-fleet !—to cover that area in the time necessary to do you any good. And all this is just to find a dead specimen so you can analyse it and maybe help another specimen, which by that time might be dead as well.

“ I know that life is more valuable in your book than any material considerations,” Summerfield continued in a somewhat quieter voice, “ but this verges on the ridiculous. Besides, I haven’t the authority to order, or even suggest, such an operation—”

“ The Hospital has,” O’Mara broke in gruffly, then to Conway : “ You’re sticking your neck out, Doctor. If as a result of the search the survivor is saved, I don’t think much will be said regarding the fuss and expense caused. The Corps might even give you a pat on the back for putting them onto another intelligent species.

“ But if this alien dies, or it turns out that it was already dead before the search was begun, you, Doctor, are for it.”

O’Mara did not have to elaborate.

Looking at the thing honestly, Conway could not say that he was more than normally concerned about his patient, and definitely not enough to want to throw away his career in the faint hope of saving the being. It was more an angry curiosity which drove him, and a vague feeling that the conflicting data they possessed formed part of a picture which included much more than just a wreck and its lone survivor. Aliens did not build ships for the sole purpose of bewildering Earth-human doctors, so the apparently contradictory evidence had to mean something.

For a moment Conway thought he had the answer. Growing at the fringes of his mind was a dim, still-formless picture . . . which was obliterated, violently and completely, by the excited voice of Hendricks in his phones :

“ Doctor, we’ve found the alien !”

When Conway joined him a few minutes later he found a portable airlock in position. Hendricks and the men of the rescue team had their helmets together talking, so as not to tie up the radio circuit. But the most wonderful sight of all to Conway was the tightly-stretched fabric of the lock.

There was pressure inside.

Hendricks switched suddenly to radio and said, “ You can go in, Doctor. Now that we’ve found it we can open the door instead of melting through.” He indicated the taut fabric

beside him and added, "Pressure in there is about twelve pounds."

That wasn't a lot, thought Conway soberly, considering that the survivor's normal environment was supposed to be five-Gs, with the tremendous air-pressure which went with such a killing gravity. He hoped that it was enough to sustain life. There must have been a slow leakage of air since the accident, he thought. Maybe the being's internal pressure had equalised sufficiently to save it.

"Get an air sample to Kursedd, quickly!" Conway said. Once they knew the composition it used it would be a simple matter to increase pressure when they had the being in the tender. He added quickly, "And I want four men to stand by at the tender. We'll need special equipment to get the survivor out of here and I might need it in a hurry."

With Hendricks he entered the tiny lock. The Lieutenant checked the seals, worked the manual control beside the door, and straightened up. A creaking in Conway's suit told of mounting pressure as air from the compartment beyond rushed in. It was clear air, he noted with some satisfaction, and not the super-thick fog which Kursedd had predicted. The air-tight door slid aside, hesitated as the still-hot section moved into its recess, then came fully open with a rush.

"Don't come in unless I call you," Conway said quietly, and stepped through. In his phones there was a grunt of assent from Hendricks, followed closely by the voice of Kursedd announcing that it was recording.

The first glimpse of a new physiological type was always a confused blur to Conway. His mind insisted on trying to relate its physical features to others in his experience, and whether it was successful or not in this the process took a little time.

"Conway!" O'Mara's voice came sharply. "Have you gone to sleep?"

Conway had forgotten about O'Mara, Summerfield and the assorted radio operators who were still linked up with him. He cleared his throat and hastily began to talk.

"The being is ring-shaped," he began, "rather like a large balloon tyre. Overall diameter of the ring is about nine feet, with the thickness between two and three feet. Mass appears to be about four times my own. I can see no movements, nor indications of gross physical injury."

Conway took a deep breath and went on, "Tegument is smooth, shiny and grey in colour where it is not covered with a thick, brownish incrustation. The brown stuff, which covers more than half of the total skin area, looks cancerous but may be some type of natural camouflage. Or it might be the result of severe decompression.

"The outer surface of the ring contains a double row of short, tentacular limbs at present folded flat against the body. There are five pairs, and no evidence of specialisation. Neither can I see any visual organs or means of ingestion. I'm going to have a closer look."

There was no visible reaction as he approached the creature, and he began to wonder if they had reached it too late. There was still no sign of eyes or mouth, but he could see small gill-like openings and something which looked like an ear. He reached out and gently touched one of the tightly-folded limbs.

The being seemed to explode.

Conway was sent spinning backwards against the floor, his whole right arm numb from the blow which had he not been wearing a heavy duty suit, would have smashed his wrist. Frantically he worked the G-belt controls to hold him against the deck, then began inching backwards towards the door. The babble of questions in his phones gradually sorted itself into two main ones: Why had he shouted, and what were the banging noises currently going on?

Conway said shakily, "Uh . . . I have established that the survivor is alive . . ."

The watching Hendricks made a choking sound. "I don't believe," said the Lieutenant in an awed voice, "that I have ever seen anything more so."

"Talk sense, you two!" O'Mara snapped. "What is happening?"

That was a difficult question to answer, Conway thought as he watched the tyre-like being half-rolling, half-bouncing about the compartment. Physical contact with the survivor had triggered off a panic reaction, and while Conway had without doubt been the cause the first time, now contact with *anything*—walls, floor, or loose debris floating about the room—had the same result. Five pairs of strong, flexible limbs lashed out in a vicious, two-foot radius arc, the force of which sent the being skidding across the room again. And no matter which part of

the massive ring body was touched, it struck out blindly in all directions at once.

Conway made it to the shelter of the portable lock just as a fortunate combination of circumstances left the alien floating helpless in the middle of the compartment, spinning slowly and bearing a remarkable resemblance to one of the old-time space-stations. But it was drifting towards one of the walls again, and he had to get things organised before it started bouncing around a second time.

Ignoring O'Mara for the moment, Conway said quickly, "We'll need a fine-mesh net, size five, a plastic envelope to go over it, and a set of pumps. In its present state we can expect no co-operation from the being. When it is under restraint and encased in the envelope we can pump in its own air, which should keep it going until it reaches the tender. By that time Kursedd should be ready for it.

"But hurry with that net!"

How a high-pressure life-form could display such violent activity in what must be to it extremely rarified air was something Conway could not understand.

"Kursedd, how is the analysis going?" he asked suddenly.

The answer was so long in coming that Conway had almost decided that the nurse had broken contact, but eventually the slow, necessarily emotionless voice replied, "It is complete. The composition of the air in the survivor's compartment is such that, if you were to take off your helmet, Doctor, you could breathe it yourself."

And that, thought Conway, stunned, was the wildest contradiction of all. Kursedd must be equally flabberghasted, he knew. Suddenly he laughed, thinking of what the nurse's fur must be doing *now* . . .

four

Six hours later, after struggling furiously for every minute of the way, the survivor had been transferred to Ward 310B, a small observation room cum theatre off the main DBLF Surgical ward. By that time Conway wasn't sure whether he wanted to restore the alien to health or murder it, and judging by the comments during the transfer of Kursedd and the Corpsmen they were similarly confused. Conway made a preliminary examination—as thorough as possible considering

the restraining net—and finished off by taking blood and skin samples. These he sent to Pathology plastered with red Most Urgent labels. Kursedd took them up personally rather than commit them to the pneumo tube, because the pathological staff were notoriously colour blind where priority labels were concerned. Finally he ordered x-rays to be taken, left Kursedd to keep the patient under observation, then went to see O'Mara.

The Chief Psychologist was interested in the welfare of the patient, Conway thought as he made his report, but not unduly so. O'Mara's prime concern was with the smooth and efficient running of the staff, which in Sector General numbered over two thousand doctors, nurses and maintenance personnel of practically every known intelligent species. Keeping so many different and potentially antagonistic life-forms working in harmony was a very big job, and one whose limits were hard to define.

Given even the highest qualities of tolerance and mutual respect in its personnel, there were still occasions when friction occurred. Potentially dangerous situations arose through ignorance or misunderstanding, or a being could develop a xenophobic neurosis which might affect its medical efficiency, mental stability, or both. An Earth-human doctor, for instance, who had a sub-conscious fear of spiders would not be able to bring to bear on an Illensan patient the proper degree of clinical detachment necessary for its treatment. It was O'Mara's duty to detect and eradicate such signs of trouble—or remove potentially troublesome individuals—long before they could develop into open conflict. This guarding against wrong, unhealthy, or intolerant thinking was a duty which he performed with such zeal that Conway had heard him likened to a latter-day Torquemada.

E-ts on the Staff whose home-planet histories did not contain an equivalent of the Inquisition likened him to other things, and often called him them to his face. But justifiable invective, in O'Mara's book, was not indicative of wrong thinking, so there were no serious repercussions.

As he talked, therefore, Conway knew that every blink, expression and change of intonation was being noted and carefully weighed, and that O'Mara was thinking about two patients instead of one. Where the Chief Psychologist was concerned, doctors were patients, too.

When he had finished O'Mara said, "The hardest part is over now. But I expect you want to follow through on this case?"

"I . . . I don't think so," Conway replied.

O'Mara frowned heavily. "If you don't want to go on with it, say so. I don't approve of dithering."

Conway breathed through his nose, then slowly and with exaggerated distinctness said, "I want to continue with the case. The doubt which I expressed was not due to an inability to make up my mind on this point, but was with regard to your mistaken assumption that the hardest part is over. It isn't. I have made a preliminary examination and when the results of the tests are in I intend making a more detailed one tomorrow."

"When I do so," Conway concluded, "I would like to have present, if it is possible, Doctors Mannen and Prilicla, Colonel Skempton and yourself."

O'Mara's eyebrows went up. He said, "An odd selection of talent, Doctor. Mind telling me what you need us for?"

Conway shook his head. "I'd rather not, just yet."

"Very well, we'll be there," O'Mara said with forced gentleness. "And I apologise for suggesting that you were a ditherer, when all you did was mumble and yawn in my face so much that I could only make out one word in three."

"Now go away and get some sleep, Doctor, before I brain you with something."

It was only then that Conway realised how tired he was. His gait on the way to his room must be closer to a weary shuffle, he thought tiredly, than an unhurried, confident tread.

Next morning Conway spent two hours with his patient before calling for the consultation he had requested from O'Mara. Everything which he had discovered, and that wasn't a great deal, made it plain that nothing constructive could be done for the being without bringing in some highly-specialised help.

Dr. Prilicla, the spidery, low-gravity and extremely fragile being of physiological classification GLNO, arrived first. Conway had worked with Prilicla before and liked the other a lot, but he had chosen to call in the GLNO simply because that particular life-form possessed an emphatic faculty. O'Mara and Colonel Skempton, who was the hospital's senior engineering officer, came together. Dr. Mannen, because of a job in the DBLF theatre, came late.

He arrived in 310B at a near run, braked, then walked slowly round the patient twice.

"Looks like a doughnut," he said. "With barnacles."

Everyone looked at Conway.

"They aren't anything so simple and harmless," Conway said, wheeling the x-ray scanner forward, "but a growth which the pathological boys say shows every indication of being malignant. And if you'll look through here you'll see that it isn't a doughnut, but possesses a fairly normal anatomy of the DBLF type—a cylindrical, lightly-boned body with heavy musculature. The being is not ring-shaped, but gives that impression because for some reason known best to itself it has been trying to swallow its tail."

Mannen stared intently into the scanner, gave an incredulous grunt, then straightened up. "A vicious circle if ever I saw one," he muttered, then added: "Is this why O'Mara is here? You suspect marbles missing?"

Conway did not think the question serious, and ignored them. He went on, "The growth is thickest where the mouth and tail of the patient come together, in fact it is so widespread in that area that it is nearly impossible to see the join. Presumably this growth is painful or at least highly irritant, and an intolerable itch might explain why it is apparently biting its own tail. Alternatively, its present physical posture might be due to an involuntary muscular contraction brought about by the growth, a type of epileptic spasm . . ."

"I like the second idea best," Mannen broke in. "For the condition to spread from mouth to tail, or vice-versa, the jaws must have locked in that position for a considerable time."

Conway nodded. He said, "Despite the artificial gravity equipment in the wreck I've established that the patient's air, pressure and gravity requirements are very similar to our own. Those gill openings back of the head and not yet reached by the growth are breathing orifices. The smaller openings, partly covered by flaps of muscle, are ears. So the patient can hear and breathe, but not eat.

"You all agree that freeing the mouth should be the first step?"

Mannen and O'Mara nodded. Prilicla spread four manipulators in a gesture which meant the same thing, and Colonel Skempton stared woodenly at the ceiling and very obviously wondering what *he* was doing here? Without further delay, Conway began to tell him.

While Mannen and himself decided on the operative procedure, the Colonel and Dr. Prilicla were to handle the communications angle. By using its empathic faculty the GLNO could listen for a reaction while a couple of Skempton's Translator technicians ran sound tests. Once the patient's audio range was known a Translator could be modified to suit it, and the being would be able to help them in the diagnosis and treatment of its complaint.

"This place is crowded enough already," the Colonel said stiffly. "I'll handle this myself." He strode across to the intercom to order the equipment he needed. Conway turned to O'Mara.

"Don't tell me, let me guess," the psychologist began before Conway could speak. "I'm to have the easiest bit—that of reassuring the patient once we're able to talk to it, and convincing it that you pair of butchers mean it no harm."

"That's it exactly," Conway said, grinning, and returned all his attention to the patient.

Prilicla reported that the survivor was unaware of them and that the emotional radiation was so slight that it suggested the being was both unconscious and close to physical exhaustion. Despite this, Conway warned them all against touching the patient.

Conway had seen malignant growths in his time, both terrestrial and otherwise, but this one took a lot of beating.

Like a tough, fibrous bark of a tree it completely covered the join between the patient's mouth and tail. And to add to their trouble the bone structure of the jaw, with which they would be chiefly concerned during the operation, could not be seen plainly with the scanner because of the fact that the growth itself was nearly opaque to x-rays. The being's eyes were also somewhere under the thick, obscuring shell, which was another reason for going carefully.

Mannen indicated the blurred picture in the scanner and said vehemently, "It wasn't scratching to relieve an itch. Those teeth are really locked on, it has practically bitten its tail off! Definitely an epileptic condition, I'd say. Or such self-inflicted punishment could mean mental unbalance . . ."

"Oh, *great*!" said O'Mara disgustedly from behind them.

Skempton's equipment arrived then, and Prilicla and the Colonel began calibrating a Translator for the patient. Being practically unconscious, the test sounds had to be of a mind-wrecking intensity to get through to it, and Mannen and

Conway were driven out to the main ward to finish their discussion.

Half an hour later Prilicla came out to tell them that they could talk to the patient, but that the being's mind still seemed to be only partly conscious. They hurried in.

O'Mara was saying that they were all friends, that they liked and felt sympathy for the patient, and that they would do everything in their power to help it. He spoke quietly into his own Translator, and a series of alien clicks and gobbles roared out from the other which had been placed near the patient's head. In the pauses between sentences Prilicla reported on the being's mental state.

"Confusion, anger, great fear," the GLNO's voice came tonelessly through its own Translator. And for several minutes the intensity and type of emotional radiation remained constant. Conway decided to take the next step.

"Tell it I am going to make physical contact," he said to O'Mara. "That I apologise for any discomfort this may cause, but that I intend no harm."

He took a long, needle-pointed probe and gently touched the area where the growth was thickest. The GLNO reported no reaction. Apparently it was only on an area unaffected by the growth where a touch could send the patient wild. Conway felt that at least he was beginning to get somewhere.

Switching off the patient's Translator, he said, "I was hoping for this. If the affected areas are dead to pain we should be able, with the patient's co-operation, to cut the mouth free without using an anaesthetic. As yet we don't know enough about its metabolism to anaesthetise without risk of killing the patient.

"Are you sure," he asked Prilicla suddenly, "that it hears and understand what we're saying?"

"Yes, Doctor," the GLNO replied. "So long as you speak slowly and without ambiguity."

Conway switched the Translator on again and said quietly, "We are going to help you. First we will enable you to resume your natural posture by freeing your mouth, and then we will remove this growth . . ."

Abruptly the restraining net bulged as five pairs of tentacles whipped furiously back and forwards. Conway jumped away

cursing, angry with the patient and angrier with himself for having rushed things too much.

"Fear and anger," said Prilicla, and added: "The being . . . it seems to have reasons for these emotions."

"But *why*? I'm trying to *help* it . . .!"

The patient's struggles increased to a violence that was incredible. Prilicla's fragile, pipestem body trembled under the impact of the emotional gale from the survivor's mind. One of its tentacles, a member which projected from the growth area, became entangled in a fold of net and was torn off.

Such blind, unreasoning panic, Conway thought sickly. But Prilicla had said that there were reasons for this reaction on the alien's part. Conway swore: even the workings of the survivor's mind were contradictory.

"Well!" said Mannen explosively, when the patient had quietened down again.

"Fear, anger, hatred," the GLNO reported. "I would say, most definitely, that it does not want your help."

"We have here," O'Mara put in grimly, "a very sick beastie indeed."

The words seemed to echo back and forth in Conway's brain, growing louder and more insistent every time. They had significance. O'Mara had, of course, been alluding to the mental condition of the patient, but that didn't matter. *A very sick beastie*—that was the key-piece of the puzzle, and the picture was beginning to fall into place around it. As yet it was incomplete, but there was enough of it there to make Conway feel more horribly afraid than he had ever been before in his life.

When he spoke he hardly recognised his own voice.

"Thank you, gentlemen. I'll have to think of another approach. When I do I'll let you know . . ."

Conway wished that they would all go away and let him think this thing out. He also wanted to run away and hide somewhere, except that there was probably nowhere in the whole Galaxy safe from what he was afraid.

They were all staring at him now, their expressions reflecting a mixture of surprise, concern and embarrassment. Lots of patients resisted treatment aimed at helping them, but that didn't mean the doctor ceased treating such a case at the first sign of resistance. Obviously they thought he had taken cold

feet over what promised to be a highly unpleasant and technically strenuous operation, and in their various ways they tried to reassure him. Even Skempton was offering suggestions.

“ . . . If a safe anaesthetic is your chief problem,” the Colonel was saying, “ isn’t it possible for Pathology to develop one, from a dead or damaged, er, specimen. I have in mind the search you requested earlier. It seems to me you have ample reason to order it now. Shall I—”

“ No !”

They were really staring at him now. O’Mara in particular wore a decidedly clinical expression. Conway said hurriedly, “ I forgot to tell you that Summerfield contacted me again. He says that current investigations now show that the wreck, instead of being the most nearly intact half of the original ship, is the half which came off worst in the accident. The other part, he says, instead of being scattered all over space, was probably in good enough shape to make it home under its own steam. So you can see that the search would be pointless.”

Conway hoped desperately that Skempton was not going to be difficult about this, or insist on checking the information himself. Summerfield had reported again from the wreck, but the Captain’s findings had not been nearly so definite as Conway had just made out. The thought of a Monitor search force blundering about in that area of space, in the light of what he knew now, made Conway break into a cold sweat.

But the Colonel merely nodded and dropped the subject. Conway relaxed, a little, and said quickly, “ Dr. Prilicla, I would like a discussion with you on the patient’s emotional state during the past few minutes, but later. Thank you again, gentlemen, for your advice and assistance . . .”

He was practically kicking them out, and their expressions told him that they knew it—there was going to be some very searching questions asked about his behaviour in this affair by O’Mara, but at the moment Conway didn’t care. When they had gone he told Kursedd to make a visual check of the patient’s condition every half an hour, and to call him if there was any change. Then he headed for his room.

five

Conway had often grouched at the tininess of the place where he slept, kept his few personal possessions, and infrequently entertained colleagues, but now its very smallness was comforting. He sat down, for the reason that there was no room to pace about, and began to extend and fill in the picture which had come in a single flash of insight back in the ward.

Really, the thing had been staring him in the face from the very beginning. First there had been the wreck's artificial gravity grids—Conway had stupidly overlooked the fact that they did not have to be operated at full power, but could be tuned to any point between zero and five-Gs. Then there had been the air-supply layout—confusing only because he had not realised that it had been designed to many different forms of life instead of only one. And there had been the physical condition of the survivor, and the colour of the outer hull—a nice, urgent, dramatic orange. Earth ships of that type, even surface vessels, were traditionally painted white.

The wreck was an ambulance ship.

But interstellar vessels of any kind were products of an advanced technical culture which must cover, or shortly hope to cover, many solar systems. And when a culture progressed to the point where such ships reached the stage of simplification and specialisation which had been reached here, then that race was highly advanced indeed. In the Galactic Federation only the cultures of Illensa, Traltha and Earth had reached that stage, and their spheres of influence were tremendous. How could a culture of that size have remained hidden for so long?

Conway squirmed uneasily in his couch : he had the answer to that question, too.

Summerfield had said that the wreck was the worst damaged section of a ship, the other half of which could be presumed to have continued under its own power to the nearest repair base. So the section containing the survivor had been torn from the ship during the original accident, which meant that the course constants of this unpowered fragment had to be the same as that of the ship as a whole before the disaster.

The ship had been coming, then, from a planet which was listed as uninhabited. But in a hundred years someone could have set up a base there, or even a colony. And the ambulance ship had been heading away from that world and into intergalactic space . . .

A culture which had crossed from one Galaxy to plant a colony on the fringes of this one, Conway thought grimly, had to be treated with great respect. And caution. Especially since its only representative so far could not, by any stretch of toleration or semantic word-juggling, be considered nice people. And the survivor's race, who were probably very highly advanced medically themselves, might not take kindly to the news that someone was botching the treatment of one of their sick. On the present evidence Conway thought that they would not take kindly to anything or anybody.

Interstellar wars of conquest were logistically impossible, Conway knew. But the same did not apply to simple wars of annihilation, where planetary atmospheres were exploded or otherwise rendered useless forever with no thought of eventual occupation or assimilation. Remembering his last contact with the patient Conway wondered if at last they had made contact with a completely vicious and inimical race . . .

The communicator buzzed suddenly. It was Kursedd reporting that the patient had been quiet for the last hour, but that the growth seemed to be spreading rapidly and threatened to cover one of the being's breathing openings. Conway said he would be along presently. He put out a call for Dr. Prilicla, then sat down again.

And he dare not tell anyone of his discovery, Conway told himself as he resumed his interrupted train of thought. To do so would mean a force of Monitors swarming out there to make premature contact—premature, that was, so far as Conway was concerned. For he was afraid that that first meeting between cultures would be in the nature of an idealogical head-on collision, and the only possibility of cushioning the shock would be if the Federation could show that they had rescued, taken care of, and *cured* one of the intergalactic colonists.

Of course there was the possibility that the patient was atypical of its race, that it was mentally ill as O'Mara had suggested. But Conway doubted if the aliens would consider that an excuse for not curing it. And against that idea was the fact that the patient had had logical—to it—reasons for being afraid and hating the person trying to help it. For a moment Conway wondered wildly if there was such a thing as a contra-terrene mind, a mentality wherein assistance produced feelings of hate instead of gratitude. Even the fact of its being found in an ambulance was no reassurance. To people like himself

the concept of an ambulance had altruistic implications, errands of mercy, and so on. But many races, even within the Federation, tended to look upon illness as mere physical inefficiency and corrected it as such.

As he left his room Conway did not have the faintest idea of how to go about curing his patient. Neither, he knew, did he have much time to do it in. At the moment Captain Summerfield, Hendricks and the others investigating the wreck were too dazzled by a multiplicity of alien chinese puzzles to think about anything else. But it was only a matter of time before they got around to it, a matter of days or even hours, and then they would come to the same conclusions as had Conway.

Shortly thereafter the Monitor Corps would make contact with the aliens, who would naturally want to know about their ailing brother, who by that time would have to be either cured or well on the way to recovery.

Or else.

The thought which Conway tried desperately to keep from thinking was ; *What if the patient died . . . ?*

Before beginning the next examination he questioned Prilicla regarding the patient's emotional state, but learned nothing new. The being was now motionless and practically unconscious. When Conway spoke to it via the Translator it emoted fear, even when Prilicla assured him that it understood what he was saying.

"I will not harm you," Conway said slowly and distinctly into the Translator, moving closer as he spoke, "but it is necessary that I touch you. Please believe me, I mean no harm . . ." He looked enquiringly at Prilicla.

The GLNO said, "Fear and . . . and helplessness. Also acceptance mixed with threats . . . no, warnings. Apparently it believes what you say, but is trying to warn you about something."

This was more promising, Conway thought. It was warning him, but it didn't mind him touching it. He moved closer and gently touched the being with his gloved hand on one of the unaffected areas of tegument . . .

And grunted with the violence of the blow which knocked his arm aside. He backed away hurriedly, rubbing his arm, then switched off the Translator so as to give vent to his feelings.

After a respectful pause the GLNO said, "We have obtained a very important datum, Dr. Conway. Despite the physical reaction the patient's feelings toward you are exactly the same as they were before you touched it."

"So what," said Conway irritably.

"So that the reaction must be involuntary."

Conway digested that for a moment, then said disgustedly, "It also means we can't risk a general anaesthetic, even if we had one, because the heart and lungs use involuntary muscles, too. That's another complication. We can't knock it out and it won't co-operate . . ." He moved to the ward control panel and pushed buttons. The clamps holding the net opened and the net itself was whisked away by a grab. He went on, "It keeps injuring itself on that net, you can see where it has nearly lost another appendage."

Prilicla objected to the removal of the net saying that if the patient was free to move about it was more likely than ever to injure itself. Conway pointed out that in its present posture—head to tail and underbelly, which contained its five sets of tentacles, facing outwards—it could do little moving about. And now that he thought of it, that position looked like the perfect defensive stance for the creature. It reminded him of the way an Earth cat lies on its side during a fight, so as to bring all four of its claws to bear. This was a ten-legged cat who could defend itself from all directions at once.

Built-in involuntary reactions of that order were the product of evolution. But why should the being adopt this defensive position and make itself completely unapproachable at the time when it needed help the most . . . ?

Suddenly, like a great light bursting in his mind, Conway knew the answer. Or, he amended with cautious excitement, he was pretty near ninety per cent sure that he did.

They had all been making wrong assumptions about this case from the start. His new theory hinged on the fact that they had made a further wrong assumption, a single, simple and very basic wrong assumption. Given that then the patient's hostility, physical posture and mental state could all be explained. It even indicated the only possible line of treatment to be taken. Best of all it gave Conway reason for thinking that the patient might not belong to the type of vicious and implacably hostile race which its behaviour had led him to believe.

The only trouble with the new theory was that it, also, might be wrong.

His first wild enthusiasm waned and his degree of certainty dropped to the mid-eighties. Another trouble was that he could not possibly discuss his intended line of treatment with anyone. To do so might mean demotion, and to insist on carrying through with it would mean his dismissal from the hospital should the patient die. What he contemplated was as serious as that.

Conway approached the patient again and switched on the Translator. He knew before he spoke what the reaction would be so it was probably an act of wanton cruelty to say the words, but he had to test his theory once more for his own reassurance. He said, "Don't worry, young fellow, we'll have you back the way you were in no time . . ."

The reaction was so violent that Dr. Prilicla, whose empathic faculty made it feel everything which the patient felt at full intensity, had to leave the ward.

It was only then that Conway finally made his decision.

During the three days which followed Conway visited the ward regularly. He took careful notes on the rate of growth of the thick, fibrous incrustation which now covered two thirds of the patient's body. There could be no doubt that it was both accelerating and growing thicker. He sent specimens to Pathology, which reported that the patient appeared to be suffering from a peculiar and particularly virulent form of skin cancer and asked if curative radiation or surgery was possible. Conway replied that in his opinion neither were possible without grave danger to the patient.

About the most constructive thing he did during that time was to post instructions that anyone contacting the patient via Translator was to avoid trying to reassure it at all costs. The being had suffered too much already from that form of well-meaning stupidity. If Conway could have forbidden entrance to the ward to everyone but Kursedd, Prilicla and himself he would have done so.

But the greater part of his time was spent in trying to convince himself that he was doing the right thing.

Conway had been deliberately avoiding Dr. Mannen since the original examination. He did not want his old friend discussing the case with him, because Mannen was too smart

to be foisted off with double talk, and Conway could not tell even him the truth. He thought longingly that the ideal situation would be for Captain Summerfield to be kept too busy at the wreck to put two and two together, for O'Mara and Skempton to forget his existence, and for Mannen to keep his nose completely out of the affair.

But that was not to be.

Dr. Mannen was waiting for him in the ward when he made his second morning visit on the fifth day, properly he requested Conway's permission to look at the patient, then with this polite formality over he went on, ". . . And listen, you young squirt, I'm getting fed up with you gazing abstractedly at your boots or the ceiling every time I come near you—if I hadn't got the hide of a Tralthan I'd feel slighted. I know, of course, that newly-appointed Seniors take their responsibilities very heavily for the first few weeks, but your recent behaviour has been downright rude."

He held up his hand before Conway could speak, and went on, "I accept your apology, and now to business. I've been talking to Prilicla and the people up in Pathology. They tell me that the growth now completely covers the body, that it is opaque to x-rays of safe intensities and that the placement and workings of the patient's internal organs can now only be guessed at. You can't cut the stuff away under anaesthetic because paralysing the appendages might knock out the heart, too. Yet an operation is impossible with those limbs whipping about. At the same time the patient is weakening and will continue to do so unless given food, which can't be done unless its mouth is freed. To complicate matters further your later specimens show that the growth is extending inwards rapidly as well, and there are indications that if the operation isn't done quickly the mouth and tail will have fused together.

"Is that, in a rather large nutshell, it?"

Conway nodded.

Mannen took a deep breath, then plunged on, "Suppose you amputate the limbs and remove the covering growth from head and tail, replacing the tegument with a suitable synthetic. With the patient able to take nourishment it would shortly be strong enough for the process to be repeated over the rest of its body. It is a drastic procedure, I admit. But in the circumstances it seems to be the only one which could save the

patient's life. And there is always the possibility of successful grafting or artificial members—"

"No !" said Conway violently, and he knew from the way Mannen looked at him that he had gone pale. If his theory concerning the patient was correct, then any sort of operation at this stage would prove fatal. And if it was not, and the patient was the type of entity which it appeared to be—vicious, warped, and implacably hostile—and its friends came looking for it . . .

In a quieter voice Conway said, "Suppose a friend of yours with a bad skin condition was picked up by an e-t doctor, and the only thing it could think of doing was to skin him alive and lop his arms and legs off. If or when you found him you would be annoyed. Even taking into account the fact that you are civilised, tolerant and prepared to make allowances—qualities which we cannot safely ascribe to the patient as yet—I would venture to suggest that there would be merry hell to play."

"That's not a true analogy and you know it !" Mannen said heatedly. "Sometimes you have to take chances. This is one of those times."

"No," said Conway again.

"Maybe you have a better suggestion ?"

Conway was silent for a moment, then he said carefully, "I do have an idea which I'm trying out, but I don't want to discuss it just yet. If it works out you'll be the first to know, and if it doesn't you'll know anyhow. Everybody will."

Mannen shrugged and turned away. At the door he paused to say awkwardly, "Whatever you're doing it must be pretty hair-brained for you to be so secretive about it. But remember that if you call me in and the thing goes sour on us, the blame gets halved . . ."

And their speaks a true friend, thought Conway. He was tempted to unburden himself completely to Mannen then. But Dr. Mannen was a nosey, kindly and very able Senior Physician who always had and always would take his profession as a healer very seriously, despite the cracks he often made about it. He might not be able to do what Conway would ask, or keep his mouth shut while Conway was doing it.

Regretfully, Conway shook his head.

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When Mannen had gone Conway returned to his patient. Visually it still resembled a doughnut, he thought, but a doughnut which had become wrinkled and fossilised with the passage of aeons. He had to remind himself that only a week had passed since the patient had been admitted. The five pairs of limbs, all beginning to show signs of being affected by the growth, projected stiffly and at odd angles from the body, like petrified twigs on a rotten tree. Realising that the growth would cover the breathing openings, Conway had inserted tubes to keep the respiratory passages clear. The tubes were having the desired effect, but despite this the respiration had slowed and become shallow. The stethoscope indicated that the heart beats were fainter but had increased in frequency.

Sheer indecision made Conway sweat.

If only it was an ordinary patient, Conway thought angrily ; one that could be treated openly and its treatment discussed freely. But this one was complicated by the fact that it was a member of a highly advanced and possibly inimical race, and he could not confide in anyone lest he be pulled off the case before his theory was proven. And the trouble was that the theory might be all wrong. It was quite possible that he was engaged in slowly killing his patient.

Noting the heart and respiration rates on the chart, Conway decided that it was time he increased the periodicity of his visits, and also arranged the times so that Prilicla, who was busy these days in the Nursery, could accompany him.

Kursedd was watching him intently as he left the ward, and its fur was doing peculiar things. Conway did not waste his breath telling the nurse to keep quiet about what he was doing to his patient because that would have made the being gossip even more. As it was he was being talked about already by the nursing staff, and he had begun to detect a certain coldness towards him from some of the senior nurses in this section, but with any luck word of what he was doing would not filter up to his seniors for several days.

Three hours later he was back in 310B with Dr. Prilicla. He checked heart and respiration again while the GLNO probed for emotional radiation.

"It is very weak," Prilicla reported slowly. "Life is present, but so faintly that it is not even conscious of itself. Considering the almost non-existent respiration and weak, rapid pulse-

rate . . .” The thought of death was particularly distressing to an empath, and the sensitive little being could not bring itself to finish the sentence.

“All these scares we gave it trying to reassure it didn’t help,” Conway said, half to himself. “It hadn’t been able to eat and we caused it to use up reserves of energy which it badly needed to keep. But it had to protect itself . . .”

“But why? We were helping the patient.”

“Of course we were,” Conway said in a bitingly sarcastic tone which he knew would not carry through the other’s Translator. He was about to continue with the examination when there was a sudden interruption.

The being whose vast bulk scraped both sides and the top of the ward door on its way in was a Tralthan, physiological classification FGLI. To Conway the natives of Traltha were as hard to tell apart as sheep, but he knew this one. This was no less than Thornnastor, Diagnostician-in-Charge of Pathology.

The Diagnostician curled two of its eyes in Prilicla’s direction and boomed, “Get out of here, please. You too, Nurse.” Then it turned all four of them on Conway.

“I am speaking to you alone,” Thornnastor said when they had gone, “because some of my remarks have bearing on your professional conduct during this case, and I have no wish to increase your discomfort by public censure. However, I will begin by giving you the good news that we have produced a specific against this growth. Not only does it inhibit the condition spreading but it softens up the areas already affected and regenerates the tissues and blood-supply network involved.”

Oh, *blast* ! thought Conway. Aloud he said, “A splendid accomplishment.” Because it really was.

“It would not have been possible had we not sent out a doctor to the wreck with instructions to send us anything which might throw light on the patient’s metabolism,” the Diagnostician continued. “Apparently you overlooked this source of data completely, Doctor, because the only specimens you furnished were those taken from the wreck during the time you were there, a very small fraction indeed of the quantity which was available. This was sheer negligence, Doctor, and only your previous good record has kept you from being demoted and taken off this case . . .”

Conway had avoided sending a medic out to the wreck for fear of its identity being discovered too soon. Practically any doctor would soon realise that the vessel was an ambulance ship, and blab to Summerfield about the discovery. After that it would be only a matter of hours before a Monitor force went tearing out to that alien colony-planet, and the very situation which Conway had been trying desperately to avoid, or at least delay, would have come about.

Were the aliens as insensately vicious as the patient's behaviour made them seem, or was his theory right? Or would it matter either way what would happen if the aliens arrived to find the patient dead . . . ?

" . . . But our success was due mainly to the finding of what appears to be a very well-equipped medical chest," Thornnastor was saying. "Study of the contents together with other information regarding the fittings in the wreck lead to the conclusion that it must have been some kind of ambulance ship. The Monitor Corps officers were very excited when we told them—"

"When?" said Conway sharply. The bottom had dropped out of everything and he felt so cold that he might have been in shock. But there might be a chance to make Skempton delay making contact. "*When* did you tell them about it being an ambulance ship?"

"That information can be only of secondary interest to you," said Thornnastor, removing a large, padded flask from its satchel. "Your primary concern is, or should be, the patient. You will need a lot of this stuff, and we are synthesising it as quickly as we can, but there is enough here to free the head and mouth area. Inject according to instructions. It takes about an hour to show effect."

Conway lifted the flask carefully. Stalling for time, he said, "What about long term effects? I wouldn't like to risk—"

"Doctor," Thornnastor interrupted, "it seems to me that you are taking caution to foolish, even criminal, lengths." The Diagnostician's voice in Conway's Translator was emotionless, but he did not have to be an empath to know that the other was extremely angry. The way Thornnastor charged out the door made that more than plain.

Conway swore luridly. The Monitors were about to contact the alien colony, if they had not done so already, and very soon the aliens would be swarming all over the hospital demanding

to know what he was doing for the patient. If it wasn't doing well by that time there would be trouble, no matter what sort of people they were. And much sooner than that would come trouble from inside the hospital, because he had not impressed Thornnastor with his professional ability at all.

In his hand was the flask whose contents would certainly do all that the Head Pathologist claimed—in short, cure what seemed to ail the patient. Conway dithered for a moment, then stuck grimly to the decision which he had made several days back. He managed to hide the flask before Prilicla returned.

"Listen to me carefully," Conway said savagely, "before you say anything at all. I don't want any arguments regarding the conduct of this case, Doctor. I think I know what I'm doing, but if I should be wrong and you were in on it, you're professional reputation would suffer. Understand?"

Prilicla's six, pipe-stem legs had been quivering as he talked, but it was not the words which were affecting the little creature, it was the feelings behind them. Conway knew that his emotional radiation just then was not a pleasant thing.

"I understand," said Prilicla.

"Very well," Conway said. "Now we'll get back to work. I want you to check me with the pulse and respiration, as well as the emotional radiation. There should be a variation soon and I don't want to miss it."

For two hours they listened and observed closely with no detectable change in the patient. At one point Conway left the being with Prilicla and Kursedd while he tried to contact Colonel Skempton. But he was told that the Colonel had left the hospital hurriedly three days ago, that he had given the spatial co-ordinates of his destination, but that it was impossible to contact a ship over interstellar distances while it was in motion. They were sorry but the Doctor's message would have to wait until the Colonel got where he was going.

So it was too late to stop the Corps making contact with the aliens. The only course now was for him to 'cure' the patient.

If he was allowed . . .

The wall annunciator clicked, coughed and said, "Dr. Conway, report to Major O'Mara's office immediately." And he was thinking bitterly that Thornnastor had lost no time in registering a complaint when Prilicla said, "Respiration almost gone. Irregular heart-beat."

Conway snatched up the ward intercom mike and yelled, "Conway here. Tell O'Mara I'm busy!" Then to Prilicla he said, "I caught it, too. How about emotion?"

"Stronger during the erratic pulse, but both back to normal now. Respiration is still fading."

"Right. Keep your ears and mind open."

Conway took a sample of expelled air from one of the breathing orifices and ran it through the analyser. Even considering the shallowness of the being's respiration this result, like the others he had taken during the past twelve hours, left no possibility for doubt. Conway began to feel a little more confident.

"Respiration almost gone," said Prilicla.

Before Conway could reply, O'Mara burst through the door. Stopping about six inches from Conway he said in a dangerously quiet voice, "Just what are you busy *at*, Doctor?"

Conway was practically dancing with impatience. He asked pleadingly, "Can't this wait?"

"No."

He would not be able to get rid of the psychologist without some sort of explanation for his recent conduct, Conway knew, and he desperately wanted to have the next hour free from interference. He moved quickly to the patient and over his shoulder gave O'Mara a hasty *resume* of his deductions regarding the alien ambulance ship and the colony from which it had come. He ended by urging the psychologist to call Skempton to delay the first contact until something more definite was known about the patient's condition.

"So you knew all this a week ago and didn't tell us," O'Mara said thoughtfully, "and I can understand your reasons for keeping quiet. But the Corps has made a great many first contacts and managed them very well, thank you. We have people specially trained for this sort of thing. You, however, have been reacting like an ostrich—doing nothing and hoping that the problem would go away. This problem, involving a culture advanced enough to have crossed intergalactic space, is too big to be dodged. It has to be solved quickly and positively. Ideally it would involve us showing proof of good feeling by producing the survivor alive and well . . ."

O'Mara's voice hardened suddenly into an angry rasp, and he was so close behind Conway that the doctor could feel his breath on his neck.

" . . . Which brings us back to the patient here, the being which you are supposed to be treating.

" *Look at me, Conway !*"

Conway turned around, but only after insuring that Prilicla was still keeping a close watch. Angrily he wondered why everything had to come to the boil at once instead of happening in a nice, consecutive fashion.

" At the first examination," O'Mara resumed quietly, " you fled to your room before we could make any headway. This looked like professional cold feet to me, but I was inclined to make allowances. Later, Dr. Mannen suggested a line of treatment which although drastic was not only allowable but definitely indicated in the patient's condition. You refused to move. Then Pathology developed a specific which could have cured the patient in a matter of hours, and you baulked at using even *that* !

" Ordinarily I discount rumours and gossip in this place," O'Mara continued, his voice rising again, " but when they become both widespread and insistent, especially among the nursing staff who generally know what they're talking about medically, I have to take notice. It has become plain that despite the constant watch you have kept on the patient, the frequent examinations and the numerous samples you have sent to Pathology, you have done absolutely nothing for the being.

" It has been dying while you *pretended* to treat it. You've been so afraid of the consequences of failure that you were incapable of making the simplest decision—"

" No !" Conway protested. That had stung even though O'Mara's accusation was based on incomplete information. And much worse than the words was the look on the Major's face, an expression of anger and scorn and a deep hurt that someone he had trusted both professionally and as a friend could have failed him so horribly. O'Mara was blaming himself almost as much as Conway for his business.

" Caution can be taken to extremes, Doctor," O'Mara said almost sadly. " You have to be bold, sometimes. If a close decision is necessary you should make it, and stick to it no matter what . . ."

" And what the blazes," asked Conway furiously, " do you *think* I've been doing ?"

" Nothing !" shouted O'Mara. " Absolutely nothing !"

"That's right !" Conway yelled back.

"Respiration has ceased," Prilicla said quietly.

Conway swung round and thumbed the buzzer for Kursedd. He said, "Heart action ? Mind ?"

"Pulse faster. Emoting a little more strongly."

Kursedd arrived then and Conway began rattling out instructions. He needed instruments from the adjoining DBLF theatre and detailed his requirements. Aseptic procedure was unnecessary, likewise anaesthetics—he wanted only a large selection of cutting instruments. The nurse disappeared and Conway called Pathology, asking if they could suggest a safe coagulant for the patient should extensive surgery be necessary. They could and said he would have it within minutes. As he was turning from the intercom, O'Mara spoke:

"All this frantic activity, this window-dressing, proves nothing. The patient has stopped breathing. If it isn't dead it is as near to it as makes no difference, and you're to blame. Heaven help you, Doctor, because nobody here will."

Conway shook his head distractedly. "Unfortunately you may be right, but I'm hoping that it won't die," he said. "I can't explain just now, but you could help me by contacting Skempton and telling him to go easy on that alien colony. I need time, just how much of it I still don't know."

"You don't know when to give up," said O'Mara angrily, but went to the intercom nevertheless. While he was arranging a link-up Kursedd undulated in with an instrument trolley. Conway placed it convenient to the patient, then said over his shoulder to O'Mara, "Here is something you might think about. For the past twelve hours the air expelled from the patient's lungs has been free from impurities. It has been breathing but apparently not using its breath . . ."

He bent quickly, adjusted his stethoscope and listened. The heart-beats were a little faster, he thought, and stronger. But there was a jarring irregularity to them. Through the thick, almost solid growth which enclosed it the sounds were both magnified and distorted. Conway could not tell if the heart alone was responsible for the noise or if other organic movements were contributing. This worried him because he didn't know what was normal for a patient like this. The survivor had, after all, been in an ambulance ship, which meant that there might have been something wrong with it in addition to its present condition . . .

"What are you raving about?" O'Mara broke in roughly, making Conway realise that he had been thinking aloud. "Are you saying now that the patient isn't sick . . .?"

Absently, Conway said, "An expectant mother can be suffering, yet not be technically ill."

He wished that he knew more of what was going on inside his patient. If the being's ears had not been completely covered by the growth he would have tried the Translator again. The sucking, bumping, gurgling noises could mean anything.

"Conway . . .!" began O'Mara, and took a breath which could be heard all over the ward. Then he forced his voice down to a conversational level and went on, "I'm in touch with Skempton's ship. Apparently they made good time and have already contacted the aliens. They're fetching the Colonel now . . ." He broke off, then added, "I'll turn up the volume so you can hear what he says."

"Not too loud," said Conway, then to Prilicla, "How is it emoting?"

"Much stronger. I detect separate emotions again. Feelings of urgency, distress and fear—probably claustrophobic—approaching the point of panic."

Conway gave the patient a long, careful appraisal. There was no visible movement. Abruptly he said, "I can't risk waiting any longer. It must be too weak to help itself. Screens, Nurse."

The screens were meant only to exclude O'Mara. Had the psychologist seen what was to come without fully knowing what was going on he would doubtless have jumped to more wrong conclusions, probably to the extent of forcibly restraining Conway.

"Its distress is increasing," Prilicla said suddenly. "There is no actual pain, but there are intense feelings of constriction . . ."

Conway nodded. He motioned for a scalpel and began cutting into the growth, trying to establish its depth. It was now like soft, crumbling cork which offered little resistance to the knife. At a depth of eight inches he bared what looked like a greyish, oily and faintly iridescent membrane, but there was no rush of body fluid into the operative field. Conway heaved a sigh of relief, withdrew, then repeated the process in another

area. This time the membrane revealed had a greenish tinge and was twitching slightly. He moved on again.

Apparently the average depth of the growth was eight inches. Working with furious speed Conway opened the covering growth in a total of nine places, spaced out at roughly equal intervals around the ring-like body, then he looked a question at Prilicla.

"Much worse now," said the GLNO. "Extreme mental distress, fear, feelings of . . . of strangulation. Pulse is up, and irregular—there is considerable strain on the heart. Also it is losing consciousness again . . ."

Before the empath had finished speaking Conway was hacking away. With long, sawing, savage strokes he linked together the openings already made with deep, jagged incisions. *Everything* was sacrificed for speed. By no stretch of the imagination could what he was doing be called surgery, because a lumberjack with a blunt axe could have performed neater work.

Finished, he stood looking at the patient for three whole seconds, but there was still no sign of movement. Conway dropped the scalpel and began tearing at the growth with his hands.

Suddenly the voice of Skempton filled the ward, excitedly describing his landing on the alien colony and the opening of communications with them. He went on, ". . . And O'Mara, the sociological set-up is weird, I've never heard of anything like it, or them ! There are two distinct life-forms—"

"But belonging to the same species," Conway put in loudly as he worked. The patient was showing definite signs of life and was beginning to help itself. He felt like yelling with sheer exultation, but instead he went on, "One form is the ten-legged type of our friend here, but without their tails sticking in their mouths. That is a transition-stage position only.

"The other form is . . . is . . ." Conway paused to give the being now revealed before him a searching, analytical stare. The remains of the growth which had covered it lay about the floor, some thrown there by Conway and the rest which it had shaken off itself. He continued, "Let's see, oxygen-breathing, of course. Oviparous. Long, rod-like but flexible body possessing four insectile legs, manipulators, the usual sense

organs, and three sets of wings. Visual aspect something like a dragonfly.

"I would say that the first form, judging by the crudely-developed appendages we noticed, performed most of the hard labour. Not until it passed through the 'Chrysalis' stage to become the more dexterous, and beautiful, dragonfly form would it be considered mature and capable of doing responsible work. This would, I suppose, make for a complicated society . . ."

"I had been about to say," Colonel Skempton broke in, his voice reflecting the chagrin of one whose thunder has just been stolen, "that a couple of the beings are on their way to take care of the survivor. They urge that nothing whatever be done to the patient . . ."

At that point O'Mara pushed through the screen. He stood gaping at the patient who was now engaged in shaking out its wings, then with a visible effort pulled himself together. He said, "I suppose apologies are in order, Doctor. But why didn't you *tell* someone . . .?"

"I had no clear proof that my theory was right," Conway said seriously. "When the patient went into a panic several times when I suggested helping it, I suspected that the growth might be normal. A caterpillar could be expected to object to anyone trying to remove its chrysalis prematurely, for the good reason that such a course would kill it. And there were other pointers. The lack of food intake, the ring-like position with the appendages facing outwards—obviously a defence mechanism from a time when natural enemies threatened the new being inside the slowly hardening shell of the old, and finally the fact that its expelled breath during the later stages showed no impurities, proving that the lungs and heart we were listening to had no longer a direct connection."

Conway went on to explain that in the early stages of the treatment he had been unsure of his theory, but still not doubtful enough in his mind to allow Mannen or Thornnastor to have their way. He had made the decision that the patient's condition was normal, or fairly normal, and the best course would be to do absolutely nothing. Which was what he had done.

". . . But this is a hospital which believes in doing everything possible for a patient," Conway went on, "and I can't

imagine Dr. Mannen, yourself, or any of the other people I know just standing by and doing nothing while their patient was apparently dying on them. Maybe someone would have accepted my theory and agreed to act on it, but I couldn't be sure. And we just *had* to cure this patient, because its friends at that time were rather an unknown quantity . . ."

"All right, all right," O'Mara broke in, holding up his hands. "You're a genius, Doctor, or something. Now what?"

Conway rubbed his chin, then said thoughtfully, "We must remember that the patient was in a hospital ship, so there must have been something wrong with it in addition to its condition. It was too weak to break out of its own chrysalis and had to have help. Maybe this weakness was its only trouble. But if it was something else, Thornnastor and his crowd will be able to cure it now that we can communicate and get its co-operation.

"Unless," he said, suddenly worried, "our earlier and misguided attempts to reassure it have caused mental damage." He switched on the Translator, chewed at his lips for a moment, then addressed the patient ;

"How do you feel?"

The reply was short and to the point, but in it were contained all the implications which gladden a worried doctor's heart.

"I'm hungry," said the patient.

James White

Apologies . . .

We apologise to any readers who replied to the advertisement on page 128 of the April issue (No. 93) for *Private Researchers* for inadvertently printing the wrong address. Enquiries should have been sent to Preston, 14 Queensborough Terrace, London, W.2 (and *not* Bessborough Terrace as we quoted).

Humour in science fiction is more often than not conspicuous by its absence. It is therefore more than a pleasure to introduce a new author who presents a strong streak of satire in his first story.

CREATURES, INCORPORATED

by LARRY MADDOCK

Curiosity killed the cat? No, that's a vile rumour, obviously designed to discourage those of an inquiring mind.

Webley's a cat. At least he was when I first met him, and that's what he looks like today, but in between—Well, let me explain.

I was sitting on a bench enjoying the sunshine and reflecting that I'd better find a job before I starved to death, when Webley sauntered into view. I had been, among other things, a newspaper reporter, radio announcer, used helicopter salesman and dishwasher, so I actually had a number of fields to choose from, but at the moment I was considering how nice it would be to go into business for myself if only I could find a business that required no capital for starting. After all, I was twenty-seven years old and if I didn't seriously begin a career pretty soon I might remain a bum all my life.

Across the street stood Webley, looking for all the world like a cat-of-the-world out to conquer some fair kitten. I mean, it was obvious that he knew what he was about. To all intents and purposes, he seemed anxious to cross the thoroughfare, which was bustling with activity—trucks, buses, and a few

passenger cars — the normal traffic found always in the city at this hour of the morning, even in the year 2072.

Having little better to do, I watched him as he surveyed the oncoming vehicles, made up his mind, and dashed headlong into the street. There was a heartrending screech of brakes as a bread truck bore down on him. I winced in sympathy as I saw one wheel catch him across the back and pin him briefly to the pavement..

I was hoping to myself that the poor creature died instantly, but then I saw him move his head, turning it to view his shattered body, and with a mighty heave lurch to his feet. He bunched his muscles under him and leaped to safety just as another truck rolled swiftly past, missing him by inches.

Then, as if Fate had not dealt him enough of a blow, Webley found himself again in mortal danger—a dog on my side of the street, who had also been watching the curious performance, rushed at him with a furious barking. The cat made as if to run, changed his mind, and flew straight up.

Yes.

Webley is the only cat, I'm happy to say, who can change into a bird at will. Webley isn't actually a cat, but as he generally looks like one we'll continue to refer to him as such.

The dog seemed fully as puzzled by this strange turn of events as I, and went on his way, growling to himself and snapping at dandelion puffs. I kept my eye on the bird, which had taken refuge overhead.

"All right," I said to the creature, "you can come down now. The dog's gone and I'd like to talk to you." A passerby would have thought me quite insane, addressing such remarks to a bird perched high in a tree, and to be perfectly honest, it seemed rather silly to me at the time, but what further amazed me was the fact that the bird obeyed. It fluttered down from the branches, landed on the bench beside me, and changed back into a cat.

"Well," I said, by way of making conversation, "you're quite a talented creature, whatever you are."

"Rest assured," the cat replied, "I'm not a cat."

"I suspected that from the start," I said. "No ordinary cat, at any rate. Just what are you, then?"

"In your language, I suppose you could call me Webley," the cat-thing responded.

"Webley it is then," I said. "My name is Grant—Bill Grant."

"I know."

"You do? Are you a telepathic cat, or simply well-informed?"

"Both," Webley replied, with enviable nonchalance. "At the moment, however, I am just as unemployed as you, and I'm anxious to become involved in gainful endeavour."

"I was just thinking," I told him, "how nice it would be to go into business for myself—but now that I've met you, it might be advantageous to make it a partnership. Have you any money?"

"Don't make jokes," Webley said sourly.

"Well," I continued, "I have somewhere in the neighbourhood of five credits. That should buy us lunch, anyway. What do you prefer, my friend—steak for a day or soup for a week?"

"No matter," he replied. "Let's first, before we gorge ourselves, decide upon what business enterprise suits us best. The mind, I've found, works better on an empty stomach."

This decided, we set about discussing the various types of businesses; which ones required great amounts of capital; and our own qualifications. We came to the inevitable conclusion that what we needed right off was money if we expected to accomplish anything at all. Not a great amount, but a modest nest egg.

I discovered that Webley was a creature from another planet, which was not particularly unusual as interstellar travel had been accomplished by Earthlings some fifteen years ago, and by now most of the known worlds had set up embassies here in New York.

Webley's natural form (which he later let me see) was far different from the disguise he now assumed, that of a cat. He told me that it was much easier to get about in the shape of a cat, as he attracted very little attention that way. He had come to Earth, he said, to seek his fortune, and considered it quite a good bit of luck that he should have encountered me before his first week on this planet was up.

His peculiar talents included, in addition to the ability to change his shape at will, telepathy, linguistics, and a certain innate sense of culture. If we were to go into some endeavour, he assured me, in which he would have contact with representatives from many races, we should be able to turn a fair profit.

"You," he said, "are a citizen of this world, so the business can be registered in your name."

"Sounds good," I agreed. "We should also, I think, be located as near the space-port as possible, in order to have contact with these new arrivals."

"Clear thinking," he told me. "But what shall we sell them?"

"Have to be a service," I said. "We can't afford merchandise. How about setting ourselves up as a tourist bureau? Sort of alien travel agency?"

Webley smiled broadly. "And sell information to the unsuspecting traveller? A capital idea!"

We discussed the details at some length, and then went in search of food. Having gorged ourselves, as Webley put it, at a sidewalk cafe nearby, we cast about for some means, fair or foul, for increasing our assets. I spotted a well-heeled customer calling for the check, and watched him present a twenty credit bill to the waiter in payment.

"Webley," I said softly, "if you were to change yourself into a bird, and swoop down upon the waiter as he returns, you could make off with quite a haul."

Webley approved of the idea, and without a word jumped to the floor and trotted off between the tables, making his exit as a cat. In a moment, he had effected the transformation from cat to bird, and was perched in readiness on a nearby rainspout.

The waiter returned in due time, bearing a collection of bills and silver on his little tray. Webley swooped, as planned, gathered up the bills in his beak, and disappeared over the rooftops. The event caused quite a stir, but there was nothing anyone could do about it.

I paid our check and departed. A few blocks further on, the bird-Webley alighted on my shoulder, still carrying the money in his beak. Our unborn corporation was eighteen credits to the good.

I pocketed the proceeds and, enamoured with this deceptively simple way of making money, we decided to spend the rest of the afternoon in similar adventures. By nightfall we had amassed a respectable sum with which to begin our more serious enterprise, and returned to my basement room to lay our plans in greater detail than before.

The following morning we went about the business of registering our new business with the authorities, under the

name, "*Creatures, Incorporated.*" It was a name that would allow us a sufficient range of activities without losing its applicability.

Fortune seemed to be smiling our way, for at the space-port there was a stall eminently suited to our use, which had just been vacated by a bankrupt seller of curios, and was available at a reasonable rent. Before the week was out we had contacted most of the major transportation companies and resort hotels, and had a growing file of information about the specialized services each offered. Moreover, our sign, a modest electrical creation which proclaimed in a dozen languages :

—CREATURES, INCORPORATED—
ALIEN HEADQUARTERS FOR ALL TRAVEL
ACCOMMODATIONS AND EARTHSIDE
INFORMATION—INTERPRETER ON DUTY

flashed its message to all comers.

Confident that our fortune lay just around the corner, Webley and I sat back to await our first client. The next spaceship arrival was scheduled for that afternoon, and was due in from Mars, so I busied myself with a study of the travel folders which gave details of accommodations offered for Martian comfort.

Air conditioning, I discovered, is a must when you're entertaining visitors from the red planet—they're used to temperatures much lower than we humans find comfortable. An ample supply of salt water is also desirable, along with various room furnishings which are too complicated to go into here. Over a score of Terran hotels offered such features, and I was so absorbed in reading the brochures at hand that I was quite unaware that the spaceship had landed.

Suddenly Webley scampered into the room, shouting, "They're here ! They're here !"

"Who ?" I asked blankly.

"Our unsuspecting customers !" he exclaimed. "Get ready—I'll do most of the talking."

At that moment, two portly Martians came through the door, looking for all the world like haughty teddybears. The average Martian is about five feet tall and is covered with a fine downy, cinnamon coloured fur from head to toe. Their facial structure makes them look perpetually aloof, although in reality they're quite friendly creatures. Our two customers were obviously a businessman and his wife, girlfriend or secretary ; I didn't know which.

"Good day, sir," Webley said in flawless Martian. "*Creatures, Incorporated* is at your service."

Some dialogue followed which I didn't even attempt to keep track of, but which was evidently satisfactory to all concerned, for in a moment Webley said to me, "Our friends are called Cholly and Sweetie, respectively. Cholly's in the export-import business in Saga City—he and his daughter Sweetie are here to scout about for Earth-products that might prove intriguing to his fellow Martians. What do we suggest by way of accommodations?"

I suggested, of course, the hotel which had agreed to pay us the largest commission for steering customers their way, quoted the prices, which Webley translated, described the accommodations, and offered the services of *Creatures, Incorporated* in changing Cholly's Martian money into Earth credits. As a travel service, we didn't miss a trick.

The teddybears agreed, so I called the hotel and arranged the other end of the deal. Soon, our first clients were on their way and Webley and I racked up a tidy profit. The performance was repeated six times that afternoon, to everyone's satisfaction.

However, all was not sweetness and light, for on the following day we encountered a challenge to our very existence. Were it not for Webley's quick thinking and my own unorthodox reading habits, I doubt if *Creatures, Incorporated* would be in business today.

The space-port had received a radiogram to the effect that a Terran patrol ship had captured a totally new specimen of life after a brief encounter out beyond the orbit of Pluto. The invader, as the ship's captain called his prisoner, had refused to respond to all the standard peaceful overtures, and had put up quite a struggle to avoid capture. The captain and his crew had tried in vain throughout the ensuing trip home to establish contact with the strange creature, which they had encased in a box for safekeeping.

All of this information, of course, was highly confidential, and had it not been for the fact that Webley is a telepath we wouldn't have known about it at all.

After discussing the problem at some length, we concluded that if *Creatures, Incorporated* could be instrumental in establishing contact with the prisoner, it would be a wonderful way to ingratiate ourselves with the officials at the space-port, and in return they might steer additional customers our way.

The ship's captain had given no detailed description of his prisoner, but he requested that a panel of authorities on alien life-forms meet his ship when he landed.

I immediately presented myself to the port authority and asked to see the administrator. I hinted that I had heard it rumoured that he was looking for experts on aliens, and informed them, with as much conviction as I could muster, that that had been my specialty for some time.

After a brief wait, I was ushered into the presence of a man named Wallace, who, it seemed, was in charge.

"An authority on aliens, eh?" he said briskly. "What was your name again?"

"William Grant," I said.

"Strange I haven't heard of you."

"I've been engaged in research for quite a while," I told him, "so I haven't been exactly in the public eye. At the moment I'm president of *Creatures, Incorporated*. We have our pilot agency right here at the space-port."

"I've seen your sign," he said. "Sort of a travel agency, isn't it?"

"That's right."

"I think I know what you're here for," he said, and his tone of voice portended the nature of what he had to say. "You're undoubtedly looking for some way to make your business prosper—probably at the expense of this port authority."

I hadn't been expecting such an outburst, and was taken back for a moment. "Why," I said, "I was thinking no such thing."

"Mister Grant," he asked suddenly, "how old are you?"

"Twenty-seven," I said.

"And just how long have you been an expert on alien psychology?"

"I don't claim to be an *expert*—"

"And where did you get your degree?"

"Well—"

"Just as I thought. I'm afraid, young man, that we're interested in men who have more thoroughly documented abilities in this field. Men such as Professor Pierson and Doctor Boone at New York University, for instance. No, I appreciate your interest, and if the recognized authorities can't handle our problem, rest assured that I know where to find you. Good day, sir."

The interview hadn't turned out at all the way I had hoped. I returned to our place of business in a foul mood and told Webley what had happened.

"Degree!" he snorted. The hackles on his neck stood straight up. "And how do his precious experts compare to me when it comes to reading minds?"

"I wouldn't know."

Webley appeared lost in thought for several minutes. "We can't come right out and say that I'm a telepath," he said at last. "But there should be some way to hide that fact and still make it appear that we possess something the others don't have."

"How about a machine?" I said.

"How so?"

"Suppose we were to construct a machine designed to probe alien minds. How does that strike you?"

"Oh," Webley purred, his countenance brightening appreciably. "I get it. I'm the machine."

"Precisely. We build a box that looks quite impressive, with all sorts of gadgets and controls on it, and put you inside to do the actual work."

Webley was delighted with the idea, and after discussing it for several minutes, we called a fabricating shop and ordered the shell of the apparatus. On the phone I described the gadget and showed the metalsmith what it would look like by means of a few quick drawings. We agreed that he could deliver such a contrivance late that afternoon.

Then I called an electronic supply house and ordered a variety of knobs, lights, transistors, condensers, tubes and other components. In my days as a radio announcer I had picked up enough of the technical end of the business to know roughly what I was doing.

The spaceship landed just before sundown. Webley kept me posted on what was happening on the field while I assembled the machine. By the time each of the "experts" had taken a look at the recalcitrant creature and were shaking their heads in bewilderment, I was making the final connections.

Webley agreed with me that the machine looked very impressive. I had even installed a meter on the face of it to measure the current flow to my "probing oscillator." A small folded dipole antenna emerged from one corner of the instrument to complete the effect.

"Beautiful," Webley commented, and climbed inside. "Can you hear me okay?" His voice came out of a small speaker and was nicely distorted, as a mechanical voice should be.

"Perfectly," I said. "What's happening at the ship?"

"All six of the experts had a look at the Queegle and they're holding a conference."

"Queegle?"

"I've been working on its mind, too, remember. It's from a small planet on the edge of the galaxy. The poor thing's more than a little frightened by all this activity, and just wants to go home."

"How about the professors?"

"They're planning to call in some of their colleagues and bring a truckload of equipment in tomorrow morning. There—one of them just suggested calling it a night. The others are agreeing. They're leaving a guard at the ship. Hmmm!" Webley snorted. "Our poor Queegle might starve to death before they figure out what it is."

"Is it in any danger?" I asked.

"From starvation? Not for a day or so. And our meddling experts can't cut it up—that's against Interplanetary Law."

Webley probed the Queegle's mind for the next half hour, learning its language and a hatful of interesting facts. Then we went back to my room and slept until daybreak. The Queegle was a fascinating challenge. By the time I went to sleep I had partially figured out the details of how we would meet the challenge.

Early the next morning we arrived at the space-port. Webley suggested that we hold off until mid-morning, when the scientists would have had a chance to get their tests completed, so we busied ourselves with the more prosaic tasks concerning *Creatures, Incorporated*, and saw several more clients on their way.

Finally, Webley reported that the experts had run out of ideas. Wallace, the man who had almost thrown me out of his office, was becoming quite impatient. Webley thought it was about time for *Creatures, Incorporated* to put in an appearance.

"Okay," I agreed, and Webley got into the box. Carrying the contrivance under my arm, I left the office and made my way to the patrol ship, which was parked over to one side of the general traffic area. A uniformed guard stood outside.

"Professor Nelson sent for this," I said, indicating the box.

The guard waved me inside. I climbed the ladder that led to the ship's airlock and went inside, still carrying the "machine."

Wallace spotted me at once and demanded, "What the devil are you doing here, Grant?"

"I thought you might need me," I said.

"I've got all the experts I can use, thank you."

"And," I asked innocently, "have they come up with an answer?"

Wallace looked uneasy for a moment; then his face broke out in a grin. "Okay, you win. What's the gadget?"

"It's a cerebral translator," I said calmly. "Inductive probe and all that. Comes in quite handy in the tourist business."

He was impressed, but still sceptical. "What does it do?"

"Reads minds."

"Sure it does," he said sarcastically. "Prove it—read my mind."

I flipped the on-off switch, twiddled a few knobs, and aimed the dipole at him. Webley made a few weird noises. "Think of a sentence," I told him. Wallace thought, and Webley intoned, "*Now is the time for all good men to come to the aid of their mistresses.*"

Wallace looked as if somebody had pinched him. "This works on aliens?" he said.

"Mr. Wallace," I told him. "I don't speak Martian. Do I have your permission to proceed?"

Wallace nodded. "Go right ahead, Mr. Grant. By all means, go right ahead."

The assembled scientists were understandably curious when Wallace told them he had called me in to work on the problem. He brushed their questions aside and invited them to watch the process.

I was led into the presence of the Queegle, a pint-sized creature that vaguely resembled a flying squirrel or an exceedingly flattened water spanial. It had tiny hands which were now clenched into tiny fists; presumably in anger over the indignity of the entire situation.

"Proceed, Mr. Grant," Wallace said.

I adjusted the controls with commendable caution, keeping an eye on the meter. Webley began humming and screeching as I worked the controls. After a few minutes, Webley changed his screeches into a few words of Queegle, or whatever you call their language.

The prisoner immediately showed interest, craning around to look at the box. The assembled scientific minds were impressed, too. Webley launched into a short speech in the alien language in which he assured the prisoner that our purposes were friendly in spite of what indignities the ship's captain had subjected it to. The Queegle relaxed and listened, which had the effect of running an electrical shock through the sceptical scientists.

"Amazing!" they exclaimed, while Wallace quietly explained that the machine was reading the alien's mind.

After a while, the Queegle started talking. For perhaps ten minutes Webley engaged it in conversation. The astonished scientists tried twice to ask questions, but each time I held a finger to my lips and looked darkly at the machine. Finally the conversation came to an end.

"Gentlemen," I said. "Would you care for a translation?"

"You mean that device of yours can translate a completely new tongue?" Dr. Boone exclaimed incredulously.

"Of course," I said. "It's a simple problem in logical analysis. A large enough sample of the alien's vocabulary was taken for the circuits to work with." I reset the knobs, adjusting the meter needle to a different reading, and pressed a button. Webley, who of course had been keeping track of what was going on, growled and whistled a few times, then said:

"I come in peace. My people are searching for a new home; I am one of many scouts sent out to find a suitable place to rebuild our civilization, before the coming catastrophe destroys our planet for all time. We are not a warlike race, but we have a sense of pride, nonetheless. Your treatment of me is an insult to all Queegle." Webley continued to feed out what he had learned from the prisoner, and the scientists were astounded. He went into all sorts of detail about the life and times of Queegle in general and this individual Queegle in particular. He described in detail the Queegle's physical structure and outlined its needs—food, water, temperature range, gravity, etc., while the "experts" took notes. Finally, when he had told just about all there was to relate, Webley whistled and screeched for a moment and was silent. I turned the power switch off.

"How," demanded Dr. Boone, "can we be sure this Queegle is telling the truth?"

"My instrument," I explained, striving for a professorial tone of voice, "probes conscious and subconscious levels of thought simultaneously. To the best of my knowledge, it's impossible for anyone—aliens included—to deceive the machine."

"Gentlemen," Professor Nelson said to his assembled colleagues, "I am in favour of accepting Mr. Grant's findings, and," he smiled, "I suggest that we might all take lessons from him. Through economic necessity he has developed a machine which is every linguist's dream. If our own investigations bear out his remarkable results, I further suggest that we see what can be done about making Mr. Grant an honorary Doctor of Alien Semantics."

The others were quick in approving such an idea.

"Thank you, gentlemen," I said modestly, "for the vote of confidence. I'm overwhelmed—men or your calibre paying such honour to me, a simple businessman—and one, I might add, with a limited education at that. Aliens, however, are my stock in trade. I'm happy to be of service whenever I can. However, right now I feel I'm needed back at my place of business—there's an outspace arrival scheduled in less than half an hour, you know."

They were most polite about it, and within ten minutes I sat once more behind my desk at *Creatures, Incorporated*. Webley was in the centre of the desk, alternatively exclaiming "Wonderful !" and holding his sides in unholy mirth.

"We're in !" he chortled. "They fell for it all the way ! Bill, you're a genius !"

"I know," I said modestly.

"That's not what I mean. They think you're a genius ; you'll have to act like one. Right now we're faced with another problem."

"Oh ?"

"They're sold on the effectiveness of the machine. Wallace just ordered the food I specified, and when the Queegle eats it, that's the clincher. Then there won't be any doubt but what the machine is real. When that happens we're in trouble."

"I get it. They'll want to examine the thing—they'll want a scientific explanation of how it works."

"Precisely. And unless you can come up with something that'll convince a panel of scientists, we're dead. *Creatures, Incorporated* might as well sell out right now."

Webley was right, of course. If the scientists found out we had been faking it we could consider ourselves a lost cause. The two of us abandoned our short-lived celebration and were plunged into deep and melancholy thought, trying to come up with an angle that would cover our crime.

"How about telling the truth?" I suggested.

Webley shook his head. "They'd find out I'm not a cat. I don't want that to be known."

"I have an idea," I said at last. "Several years ago I remember reading some ancient magazines. Something about machines that couldn't possibly work but they did. It seems that here on Earth, every century has its own scientific fad—in the 19th Century, it was perpetual motion; in the latter half of the 20th, a lot of experimenting was done with another type of gadget called. I think, a Hieronymous machine."

"Hieronymous?"

"That's what they called it. The idea was to change thought energy into some sort of manifestation you could see or measure—some of them said they were actually amplifying thought waves. All sorts of encouraging results were reported, but as the machines supposedly combined the mind of the operator with the function of the machine, there wasn't any way to put them into mass production, and except for a few devoted hobbiests, the idea was subsequently dropped."

"So what does this have to do with *Creatures, Incorporated*?"

"Don't you see? We've got a Hieronymous machine—and I dare any of our high-powered scientists to prove that it isn't!"

For the first time since I'd known him, Webley looked absolutely blank. "Do you think they'll fall for it?" he asked doubtfully.

"Why not? I remember my grandfather telling me when I was a little boy, 'Billy, remember this—every man, college professors included, is a damn fool when you take him outside his own narrow field.' And since then I've found out that Grandpa was right."

"Okay," the cat-webley said. "It's worth a try, at any rate."

I dismantled the machine and added some circuits which obviously were intended to do exactly nothing. Then I wired a pocket recorder into the base of the thing, installed a harness for Webley, and put the device back together. On the outside it looked the same as before, but the guts of the contraption

now contained enough confusing circuitry to impress even the most scientific observer.

I had hardly screwed the face-plate back in position when the phone rang. It was Wallace.

"Mr. Grant, would you consent to an examination of your machine, in the interests of science?"

"I suppose that would be all right, as long as you don't harm Webley," I told him.

"Webley?"

"My cat. He's part of the machine, you know."

"No, I didn't know. You mean the device is partially alive?"

"Of course."

Wallace looked as if he were about to suffer a stroke of apoplexy. "Don't go away," he said. "We'll be right over."

It took the five of them exactly two minutes and twenty seconds to get from his office to mine, a feat they could have been accomplished only at a dead run.

"Are you serious, Grant?" Wallace demanded.

"I've never been more serious in my life," I told him.

"Then tell these gentlemen what you just finished telling me!"

"Certainly." I pointed to the machine. "This is part of the gadget." Then I pointed to Webley, who was "sleeping" cat-like on the desk top. "Webley, my cat, is another part of it. I suspect that I'm also involved to a certain extent."

The graybeards looked from me to the machine, then at Webley and back again to the machine. "Just how," one of them inquired, "can a cat be part of a machine?"

I decided to brazen it out. "Webley fits inside. My theory is that the machine amplifies Webley's thought processes, and in conjunction with the machine he's able to probe the consciousness of whomever the gadget is trained on. There's some precedent for such a device in the 1950's when experiments were being conducted with what they called Hieronymous machines. It's a branch of psi-oriented research that's been neglected for over a hundred years."

"Amazing," whispered Professor Pierson, with the typical gullibility of a man in a totally new field. "I would hardly have thought it possible."

His colleagues echoed the professor's sentiments to a man.

"Your Webley," Nelson wanted to know, "is he a perfectly ordinary cat?"

"My dear professor," I said, smiling that mysterious smile I had seen on the faces of other feline fanciers, "there is no such thing as a perfectly ordinary cat."

"Yes, yes," the assembled brains agreed. "May we see the insides of the contrivance?"

"Of course." I removed the face plate and exposed the tangle of wiring inside. The scientists spent a full twenty minutes trying to impress each other with their knowledge of esoteric electronic variations while Webley and I sat back and watched.

"Could you build another one like it?" Pierson asked.

"Probably," I told him. "But there's no guarantee that it would work—even with Webley inside. And of course I'm not going to loan my cat out like a piece of furniture."

Nelson nodded understandingly. "I, too, am a cat lover," he said. "I know just how you feel."

Webley got up, crossed the room, and rubbed himself against Nelson's pant leg.

At last the covey of scientists departed, still muttering "Remarkable!" and "Revolutionary!" to each other, and Webley and I were left alone with our triumph.

In the interim, I had made arrangements with Wallace for further interviews with the Queegle, stipulating, of course, a fat fee for my services. Wallace agreed without hesitation, adding that he would also be happy to recommend *Creatures, Incorporated* to all and sundry visiting aliens.

Finally, when they all had gone, and Webley and I were alone once again, he turned to me and grinned as only a Webley can grin. "Bill," he said, "I think I underestimated you. You are a genius."

"Of course," I said modestly.

Webley, in addition to his many other talents, is a remarkably observant creature, and a wonderful judge of character. Yes, sir. I don't know what I'd do without him.

Larry Maddock

In the big cities of the world Time is already at a premium and as the population increases it will become (and already is becoming) a problem to fit everything and everybody into a workable schedule. Jim Ballard takes our presentday congestion problems to a very logical conclusion.

CHRONOPOLIS

by J. G. BALLARD

His trial had been fixed for the next day. Exactly when, of course, neither he nor anyone else knew. Probably it would be during the afternoon, when the principles concerned—judge, jury and prosecutor—managed to converge on the same courtroom at the same time. With luck his defence attorney might also appear at the right moment, though the case was such an open and shut one that Newman hardly expected him to bother—besides, transport to and from the old penal complex was notoriously difficult, involved endless waiting in the grimy depot below the prison walls.

Newman had passed the time usefully. Luckily, his cell faced south and sunlight traversed it for most of the day. He divided its arc into ten equal segments, the effective daylight hours, marking the intervals with a wedge of mortar prised from the window ledge. Each segment he further subdivided into twelve smaller units.

Immediately he had a working time-piece, accurate to within virtually a minute (the final subdivision into fifths he

made mentally). The sweep of white notches, curving down one wall, across the floor and metal bedstead, and up the other wall, would have been recognisable to anyone who stood with his back to the window, but no one ever did. Anyway, the guards were too stupid to understand, and the sun dial had given Newman a tremendous advantage over them. Most of the time, when he wasn't re-calibrating the dial, he would press against the grille, keeping an eye on the orderly room.

"Brocken !" he would shout out at 7.15, as the shadow line hit the first interval. "Morning inspection ! On your feet, man !" The sergeant would come stumbling out of his bunk in a sweat, cursing the other warders as the reveille bell split the air.

Later Newman sang out the other events on the daily roster : roll-call, cell fatigues, breakfast, exercise and so on round to the evening roll just before dusk. Brocken regularly won the block merit for the best-run cell deck and he relied on Newman to programme the day for him, anticipate the next item on the roster and warn him if anything went on for too long—in some of the other blocks fatigues were usually over in three minutes while breakfast or exercise could go on for hours, none of the warders knowing when to stop, the prisoners insisting that they had only just begun.

Brocken never enquired how Newman organised everything so exactly ; once or twice a week, when it rained or was overcast, Newman would be strangely silent, and the resulting confusion reminded the sergeant forcefully of the merits of co-operation. Newman was kept in cell privileges and all the cigarettes he needed. It was a shame that a date for the trial had finally been named.

Newman, too, was sorry. Most of his research so far had been inconclusive. Primarily his problem was that, given a northward-facing cell for the bulk of his sentence, the task of estimating the time might become impossible. The inclination of the shadows in the exercise yards or across the towers and walls provided too blunt a reading. Calibration would have to be visual ; an optical instrument would soon be discovered.

What he needed was an internal time-piece, an unconsciously operating psychic mechanism regulated, say, by his pulse or respiratory rhythms. He had tried to train his time sense, running an elaborate series of tests to estimate its minimum

in-built error, and this had been disappointingly large. The chances of conditioning an accurate reflex seemed slim.

However, unless he could tell the exact time at any given moment, he knew he would go mad.

His obsession, which now faced him with a charge of murder, had revealed itself innocently enough.

As a child, like all children, he had noticed the occasional ancient clock tower, bearing the same white circle with its twelve intervals. In the seedier areas of the city the round characteristic dials often hung over cheap jewellery stores, rusting and derelict.

"Just signs," his mother explained. "They don't mean anything, like stars or rings."

Pointless embellishment, he had thought.

Once, in an old furniture shop, they had seen a clock with hands, upside down in a box full of fire irons and miscellaneous rubbish.

"Eleven and twelve," he had pointed out. "What does it mean?"

His mother had hurried him away, reminding herself never to visit that street again. Time Police were still supposed to be around, watching for any outbreak. "Nothing," she told him sharply. "It's all finished." To herself she added experimentally: Five and twelve. Five to twelve. Yes.

Time unfolded at its usual sluggish, half confused pace. They lived in a ramshackle house in one of the amorphous suburbs, a zone of endless afternoons. Sometimes he went to school, until he was ten spent most of his time with his mother queueing outside the closed food stores. In the evenings he would play with the neighbourhood gang around the abandoned railway station, punting a home-made flat car along the overgrown tracks, or break into one of the unoccupied houses and set up a temporary command post.

He was in no hurry to grow up; the adult world was unsynchronised and ambitionless. After his mother died he spent long days in the attic, going through her trunks and old clothes, playing with the bric-a-brac of hats and beads, trying to recover something of her personality.

In the bottom compartment of her jewellery case he came across a small flat gold-cased object, equipped with a wrist strap. The dial had no hands but the twelve-numbered face intrigued him and he fastened it to his wrist.

His father choked over his soup when he saw it that evening.

"Conrad, my God ! Where in heaven did you get that ?"

"In Mamma's bead box. Can't I keep it ?"

"No. Conrad, give it to me ! Sorry, son." Thoughtfully :

"Let's see, you're fourteen. Look, Conrad, I'll explain it all in a couple of years."

With the impetus provided by this new taboo there was no need to wait for his father's revelations. Full knowledge came soon. The older boys knew the whole story, but strangely enough it was disappointingly dull.

"Is that all ?" he kept saying. "I don't get it. Why worry so much about clocks ? We have calendars, don't we ?"

Suspecting more, he scoured the streets, carefully inspecting every derelict clock for a clue to the real secret. Most of the faces had been mutilated, hands and numerals torn off, the circle of minute intervals stripped away, leaving a shadow of fading rust. Distributed apparently at random all over the city, above stores, banks and public buildings, their real purpose was hard to discover. Sure enough, they measured the progress of time through twelve arbitrary intervals, but this seemed barely adequate grounds for outlawing them. After all, a whole variety of timers were in general use : in kitchens, factories, hospitals, wherever a fixed period of time was needed. His father had one by his bed at night. Sealed into the standard small black box, and driven by miniature batteries, it emitted a high penetrating whistle shortly before breakfast the next morning, woke him if he overslept. A clock was no more than a calibrated timer, in many ways less useful, as it provided you with a steady stream of irrelevant information. What if it was half past three, as the old reckoning put it, if you weren't planning to start or finish anything then ?

Making his questions sound as naive as possible, he conducted a long careful poll. Under fifty no one appeared to know anything at all about the historical background, and even the older people were beginning to forget. He also noticed that the less educated they were the more they were willing to talk, indicating that manual and lower class workers had played no part in the revolution and consequently had no guilt-charged memories to repress. Old Mr. Crichton, the plumber who lived in the basement apartment, reminisced

without any prompting, but nothing he said threw any light on the problem.

"Sure, there were thousands of clocks then, millions of them, everybody had one. Watches we called them, strapped to the wrist, you had to screw them up every day."

"But what did you *do* with them, Mr. Crichton?" Conrad pressed.

"Well, you just—looked at them, and you knew what time it was. One o'clock, or two, or half past seven—that was when I'd go off to work."

"But you go off to work now when you've had breakfast. And if you're late the timer rings."

Crichton shook his head. "I can't explain it to you, lad. You ask your father."

But Mr. Newman was hardly more helpful. The explanation promised for Conrad's sixteenth birthday never materialised. When his questions persisted Mr. Newman tired of side-stepping, shut him up with an abrupt: "Just stop thinking about it, do you understand? You'll get yourself and the rest of us into a lot of trouble."

Stacey, the young English teacher, had a wry sense of humour, liked to shock the boys by taking up unorthodox positions on marriage or economics. Conrad wrote an essay describing an imaginary society completely preoccupied with elaborate rituals revolving around a minute by minute observance of the passage of time.

Stacey refused to play, however, gave him a non-committal beta plus, after class quietly asked Conrad what had prompted the fantasy. At first Conrad tried to back away, then finally came out with the question that contained the central riddle.

"Why is it against the law to have a clock?"

Stacey tossed a piece of chalk from one hand to the other.

"Is it against the law?"

Conrad nodded. "There's an old notice in the police station offering a bounty of one hundred pounds for every clock or wrist watch brought in. I saw it yesterday. The sergeant said it was still in force."

Stacey raised his eyebrows mockingly. "You'll make a million. Thinking of going into business?"

Conrad ignored this. "It's against the law to have a gun because you might shoot someone. But how can you hurt anybody with a clock?"

"Isn't it obvious? You can time him, know exactly how long it takes him to do something."

"Well?"

"Then you can make him do it faster."

At seventeen, on a sudden impulse, he built his first clock. Already his preoccupation with time was giving him a marked lead over his class mates. One or two were more intelligent, others more conscientious, but Conrad's ability to organise his leisure and homework periods allowed to him to make the most of his talents. When the others were lounging around the railway yard on their way home Conrad had already completed half his prep, allocating his time according to its various demands.

As soon as he finished he would go up to the attic playroom, now his workshop. Here, in the old wardrobes and trunks, he did his first experimental constructions: calibrated candles, crude sun dials, sand glasses, an elaborate clockwork contraption developing about half a horse power that drove its hands progressively faster and faster in an unintentional parody of Conrad's obsession.

His first serious clock was water-powered, a slowly leaking tank holding a wooden float that drove the hands as it sank downwards. Simple but accurate, it satisfied Conrad for several months while he carried out his ever-widening search for a real clock mechanism. He soon discovered that although there were innumerable table clocks, gold pocket watches and time pieces of every variety rusting in junk shops and in the back drawers of most homes, none of them contained their mechanisms. These, together with the hands, and sometimes the digits, had always been removed. His own attempts to build an escapement that would regulate the motion of the ordinary clockwork motor met with no success; everything he had heard about clock movements confirmed that they were precision instruments of exact design and construction. To satisfy his secret ambition—a portable time-piece, if possible an actual wrist watch—he would have to find one, somewhere, in working order.

Finally, from an unexpected source, a watch came to him. One afternoon in a cinema an elderly man sitting next to Conrad had a sudden heart attack. Conrad and two members of the audience carried him out to the manager's office. Holding one of his arms, Conrad noticed in the dim aisle

light a glint of metal inside the sleeve. Quickly he felt the wrist with his fingers, identified the unmistakable lens-shaped disc of a wrist watch.

As he carried it home its tick seemed as loud as a death-knell. He clamped his hand around it, expecting everyone in the street to point accusingly at him, the Time Police to swoop down and seize him.

In the attic he took it out and examined it breathlessly, smothering it in a cushion whenever he heard his father shift about in the bedroom below. Later he realised that its noise was almost inaudible. The watch was of the same pattern as his mother's, though with a yellow and not a red face. The gold case was scratched and peeling, but the movement seemed to be in perfect condition. He pried off the rear plate, watched the frenzied flickering world of miniature cogs and wheels for hours, spellbound. Frightened of breaking the main spring, he kept the watch only half wound, packed away carefully in cotton wool.

In taking the watch from its owner he had not, in fact, been motivated by theft; his first impulse had been to hide the watch before the doctor discovered it feeling for the man's pulse. But once the watch was in his possession he abandoned any thought of tracing the owner and returning it.

That others were still wearing watches hardly surprised him. The water clock had demonstrated that a calibrated time-piece added another dimension to life, organised its energies, gave the countless activities of everyday existence a yardstick of significance. Conrad spent hours in the attic gazing at the small yellow dial, watching its minute hand revolve slowly, its hour hand press on imperceptibly, a compass charting his passage through the future. Without it he felt rudderless, adrift in a grey purposeless limbo of timeless events. His father began to seem idle and stupid, sitting around vacantly with no idea when anything was going to happen.

Soon he was wearing the watch all day. He stitched together a slim cotton sleeve, fitted with a narrow flap below which he could see the face. He timed everything—the length of classes, football games, meal breaks, the hours of daylight and darkness, sleep and waking. He amused himself endlessly by baffling his friends with demonstrations of this private sixth sense, anticipating the frequency of their heart beats, the hourly newscasts on the radio, boiling a series of identically consistent eggs without the aid of a timer.

Then he gave himself away.

Stacey, shrewder than any of the others, discovered that he was wearing a watch. Conrad had noticed that Stacey's English classes lasted exactly 45 minutes, let himself slide into the habit of tidying his desk a minute before Stacey's timer piped up. Once or twice he noticed Stacey looking at him curiously, but he could not resist the temptation to impress Stacey by always being the first one to make for the door.

One day he had stacked his books and clipped away his pen when Stacey pointedly asked him to read out a precis he had done. Conrad knew the timer would pip out in less than ten seconds, and decided to sit tight and wait for the usual stampede to save him the trouble.

Stacey stepped down from the dais, waiting patiently. One or two boys turned around and frowned at Conrad, who was counting away the closing seconds.

Then, amazed, he realised that the timer had failed to sound ! Panicking, he first thought his watch had broken, just restrained himself in time from looking at it.

"In a hurry, Newman?" Stacey asked dryly. He sauntered down the aisle to Conrad, smiling sardonically. Baffled, and face reddening with embarrassment, Conrad fumbled open his exercise book, read out the precis. A few minutes later, without waiting for the timer, Stacey dismissed the class.

"Newman," he called out. "Here a moment."

He rummaged behind the rostrum as Conrad approached. "What happened then?" he asked. "Forget to wind up your watch this morning?"

Conrad said nothing. Stacey took out the timer, switched off the silencer and listened to the pip that buzzed out.

"Where did you get it from? Your parents? Don't worry, the Time Police were disbanded years ago."

Conrad examined Stacey's face carefully. "It was my mother's," he lied. "I found it among her things." Stacey held out his hand and Conrad nervously unstrapped the watch and handed it to him.

Stacey slipped it half out of its sleeve, glanced briefly at the yellow face. "Your mother, you say? Hmh."

"Are you going to report me?" Conrad asked.

"What, and waste some over-worked psychiatrist's time even further?"

"Isn't it breaking the law to wear a watch?"

"Well, you're not exactly the greatest living menace to public security." Stacey started for the door, gesturing Conrad with him. He handed the watch back. "Cancel whatever you're doing on Saturday afternoon. You and I are taking a trip."

"Where?" Conrad asked.

"Back into the past," Stacey said lightly. "To Chronopolis the Time City."

Stacey had hired a car, a huge battered mastodon of chromium and fins. He waved jauntily to Conrad as he picked him up outside the public library.

"Climb into the turret," he called out. He pointed to the bulging briefcase Conrad slung onto the seat between them. "Have you had a look at those yet?"

Conrad nodded. As they moved off around the deserted square he opened the briefcase and pulled out a thick bundle of road maps. "I've just worked out that the city covers over 500 square miles. I'd never realised it was so big. Where is everybody?"

Stacey laughed. They crossed the main street, cut down into a long tree-lined avenue of semi-detached houses. Half of them were empty, windows wrecked and roofs sagging. Even the inhabited houses had a makeshift appearance, crude water towers on home-made scaffolding lashed to their chimneys, piles of logs dumped in over-grown front gardens.

"Thirty million people once lived in this city," Stacey remarked. "Now the population is little more than two, and still declining. Those of us left hang on in what were once the distal suburbs, so that the city today is effectively an enormous ring, five miles in width, encircling a vast dead centre forty or fifty miles in diameter."

They wove in and out of various back roads, past a small factory still running although work was supposed to end at noon, finally picked up a long straight boulevard that carried them steadily westwards. Conrad traced their progress across successive maps. They were nearing the edge of the annulus Stacey had described. On the map it was overprinted in green so that the central interior appeared a flat uncharted grey, a massive terra incognita.

They passed the last of the small shopping thoroughfares he remembered, a frontier post of mean terraced houses, dismal streets spanned by massive steel viaducts. Stacey

pointed up at one as they drove below it. "Part of the elaborate railway system that once existed, an enormous network of stations and junctions that carried fifteen million people into a dozen great terminals every day."

For half an hour they drove on, Conrad hunched against the window, Stacey watching him in the driving mirror. Gradually, the landscape began to change. The houses were taller, with coloured roofs, the sidewalks were railed off and fitted with pedestrian lights and turnstiles. They had entered the inner suburbs, completely deserted streets with multi-level supermarkets, towering cinemas and department stores.

Chin in one hand, Conrad stared out silently. Lacking any means of transport he had never ventured into the uninhabited interior of the city, like the other children always headed in the opposite direction for the open country. Here the streets had died twenty or thirty years earlier; plate glass shopfronts had slipped and smashed into the roadway, old neon signs, window frames and overhead wires hung down from every cornice, trailing a ragged webwork of disintegrating metal across the pavements. Stacey drove slowly, avoiding the occasional bus or truck abandoned in the middle of the road, its tyres peeling off their rims.

Conrad craned up at the empty windows, into the narrow alleys and sidestreets, but nowhere felt any sensation of fear or anticipation. These streets were merely derelict, as unhaunted as a half-empty dustbin.

One suburban centre gave way to another, to long intervening stretches of congested ribbon developments. Mile by mile, the architecture altered its character; buildings were larger, ten or fifteen-storey blocks, clad in facing materials of green and blue tiles, glass or copper sheathing. They were moving forward in time rather than, as Conrad had expected, back into the past of a fossil city.

Stacey worked the car through a nexus of side streets towards a six-lane expressway that rose on tall concrete buttresses above the rooftops. They found a side road that circled up to it, levelled out and then picked up speed sharply, spinning along one of the clear centre lanes.

Conrad craned forward. In the distance, two or three miles away, the tall rectilinear outlines of enormous apartment blocks reared up thirty or forty storeys high, hundreds of them lined shoulder to shoulder in apparently endless ranks, like giant dominoes.

"We're entering the central dormitories here," Stacey told him. On either side buildings overtopped the motorway, the congestion mounting so that some of them had been built right up against the concrete palisades.

In a few minutes they passed between the first of the apartment batteries, the thousands of identical living units with their slanting balconies shearing up into the sky, the glass in-falls of the aluminium curtain walling speckling in the sunlight. The smaller houses and shops of the outer suburbs had vanished. There was no room on the ground level. In the narrow intervals between the blocks there were small concrete gardens, shopping complexes, ramps banking down into huge underground car parks.

And on all sides there were the clocks. Conrad noticed them immediately, at every street corner, over every archway, three-quarters of the way up the sides of buildings, covering every conceivable angle of approach. Most of them were too high off the ground to be reached by anything less than a fireman's ladder and still retained their hands. All registered the same time : 12:01.

Conrad looked at his wrist watch, noted that it was just 2.45 p.m.

"They were driven by a master clock," Stacey told him. "When that stopped they all seized at the same moment. One minute after midnight, thirty-seven years ago."

The afternoon had darkened, as the high cliffs cut off the sunlight, the sky a succession of narrow vertical intervals opening and closing around them. Down on the canyon floor it was dismal and oppressive, a wilderness of concrete and frosted glass. The expressway divided and pressed on westwards. After a few more miles the apartment blocks gave way to the first office buildings in the central zone. These were even taller, sixty or seventy storeys high, linked by spiralling ramps and causeways. The expressway was fifty feet off the ground yet the first floors of the office blocks were level with it, mounted on massive stilts that straddled the glass-enclosed entrance bays of lifts and escalators. The streets were wide but featureless. The sidewalks of parallel roadways merged below the buildings, forming a continuous concrete apron. Here and there were the remains of cigarette kiosks, rusting stairways up to restaurants and arcades built on platforms thirty feet in the air.

Conrad, however, was looking only at the clocks. Never had he visualised so many, in places so dense that they obscured each other. Their faces were multi-coloured : red, blue, yellow, green. Most of them carried four or five hands. Although the master hands had stopped at a minute past twelve, the subsidiary hands had halted at varying positions, apparently dictated by their colour.

"What were the extra hands for?" he asked Stacey. "And the different colours?"

"Time zones. Depending on your professional category and the consumer-shifts allowed. Hold on, though, we're almost there."

They left the expressway and swung off down a ramp that fed them into the north east corner of a wide open plaza, eight hundred yards long and half as wide, down the centre of which had once been laid a continuous strip of lawn, now rank and overgrown. The plaza was empty, a sudden block of free space bounded by tall glass-faced cliffs that seemed to carry the sky.

Stacey parked, and he and Conrad climbed out and stretched themselves. Together they strolled across the wide pavement towards the strip of waist-high vegetation. Looking down the vistas receding from the plaza Conrad grasped fully for the first time the vast perspectives of the city, the massive geometric jungle of buildings.

Stacey put one foot up on the balustrade running around the lawn bed, pointed to the far end of the plaza, where Conrad saw a low-lying huddle of buildings of unusual architectural style, 19th century perpendicular, stained by the atmosphere and badly holed by a number of explosions. Again, however, his attention was held by the clock face built into a tall concrete tower just behind the older buildings. This was the largest clock dial he had ever seen, at least a hundred feet across, huge black hands halted at a minute past twelve. The dial was white, the first they had seen, but on wide semi-circular shoulders built out off the tower below the main face were a dozen smaller faces, no more than twenty feet in diameter, running the full spectrum of colours. Each had five hands, the inferior three halted at random.

"Fifty years ago," Stacey explained, gesturing at the ruins below the tower, "that collection of ancient buildings was one of the world's greatest legislative assemblies." He gazed at it quietly for a few moments, then turned to Conrad. "Enjoy the ride?"

Conrad nodded fervently. "It's impressive, all right. The people who lived here must have been giants. What's really remarkable is that it looks as if they left only yesterday. Why don't we go back?"

"Well, apart from the fact that there aren't enough of us now, even if there were we couldn't control it. In its hey-day this city was a fantastically complex social organism. The communications problems are difficult to imagine merely by looking at these blank facades. It's the tragedy of this city that there appeared to be only one way to solve them."

"Did they solve them?"

"Oh, yes, certainly. But they left themselves out of the equation. Think of the problems, though. Transporting fifteen million office workers to and from the centre every day, routeing in an endless stream of cars, buses, trains, helicopters, linking every office, almost every desk, with a videophone, every apartment with television, radio, power, water, feeding and entertaining this enormous number of people, guarding them with ancillary services, police, fire squads, medical units—it all hinged on one factor."

Stacey threw a fist out at the great tower clock. "Time! Only by synchronising every activity, every footstep forward or backward, every meal, bus-halt and telephone call, could the organism support itself. Like the cells in your body, which proliferate into mortal cancers if allowed to grow in freedom, every individual here had to subserve the over-riding needs of the city or fatal bottlenecks threw it into total chaos. You and I can turn on the tap any hour of the day or night, because we have our own private water cisterns, but what would happen here if everybody washed the breakfast dishes within the same ten minutes?"

They began to walk slowly down the plaza towards the clock tower. "Fifty years ago, when the population was only ten million, they could just provide for a potential peak capacity, but even then a strike in one essential service paralysed most of the others, it took workers two or three hours to reach their offices, as long again to queue for lunch and get home. As the population climbed the first serious attempts were made to stagger hours; workers in certain areas started the day an hour earlier or later than those in others. Their railway passes and car number plates were coloured accordingly, and if they tried to travel outside the permitted periods

they were turned back. Soon the practice spread ; you could only switch on your washing machine at a given hour, post a letter or take a bath at a specific period."

"Sounds feasible," Conrad commented, his interest mounting. "But how did they enforce all this?"

"By a system of coloured passes, coloured money, an elaborate set of schedules published every day like the TV or radio programmes. And, of course, by all the thousands of clocks you can see around you here. The subsidiary hands marked out the number of minutes remaining in any activity period for people in the clock's colour category."

Stacey stopped, pointed to a blue-faced clock mounted on one of the buildings overlooking the plaza. "Let's say, for example, that a lower-grade executive leaving his office at the allotted time, 12 o'clock, wants to have lunch, change a library book, buy some aspirin, and telephone his wife. Like all executives, his identity zone is blue. He takes out his schedule for the week, or looks down the blue-time columns in the newspaper, and notes that his lunch period for that day is 12.15 to 12.30. He has fifteen minutes to kill. Right, he then checks the library. Time code for today is given as 3, that's the third hand on the clock. He looks at the nearest blue clock, the third hand says 37 minutes past—he has 23 minutes, ample time, to reach the library. He starts down the street, but finds at the first intersection that the pedestrian lights are only shining red and green and he can't get across. The area's been temporarily zoned off for lower-grade women office workers—reds, and manuals—greens."

"What would happen if he ignored the lights?" Conrad asked.

"Nothing immediately, but all blue clocks in the zoned area would have returned to zero, and no shops or the library would serve him, unless he happened to have red or green currency and a forged set of library tickets. Anyway, the penalties were too high to make the risk worthwhile, and the whole system was evolved for his convenience, no one else's. So, unable to reach the library, he decides on the chemist. The time code for the chemist is 5, the fifth, smallest hand. It reads 54 minutes past : he has six minutes to find a chemist and make his purchase. This done, he still has five minutes before lunch, decides to phone his wife. Checking the phone code he sees that no period has been provided for private calls that day—or the next. He'll just have to wait until he sees her that evening."

“What if he did phone?”

“He wouldn’t be able to get his money in the coin box, and even then, his wife, assuming she is a secretary, would be in a red time zone and no longer in her office for that day—hence the prohibition on phone calls. It all meshed perfectly. Your time programme told you when you could switch on your TV set and when to switch off. All electric appliances were fused, and if you strayed outside the programmed periods you’d have a hefty fine and repair bill to meet. The viewer’s economic status obviously determined the choice of programme, and vice versa, so there was no question of coercion. Each day’s programme listed your permitted activities: you could go to the hairdresser’s, cinema, bank, cocktail bar, at stated times, and if you went then you were sure of being served quickly and efficiently.”

They had almost reached the far end of the plaza. Facing them on its tower was the enormous clock face, dominating its constellation of twelve motionless attendants.

“There were a dozen socio-economic categories: blue for executives, gold for professional classes, yellow for military and government officials—incidentally, its odd your parents ever got hold of that wrist watch, none of your family ever worked for the government—green for manual workers and so on. But, naturally subtle subdivisions were possible. The lower-grade executive I mentioned left his office at 12, but a senior executive, with exactly the same time codes, would leave at 11.45, have an extra 15 minutes, would find the streets clear before the lunch-hour rush of clerical workers.”

Stacey pointed up at the tower. “This was the Big Clock, the master from which all others were regulated. Central Time Control, a sort of Ministry of Time, gradually took over the old parliamentary buildings as their legislative functions diminished. The programmers were, effectively, the city’s absolute rulers.”

As Stacey continued Conrad gazed up at the battery of time-pieces, poised helplessly at 12.01. Somehow Time itself seemed to have been suspended, around him the great office buildings hung in a neutral interval between yesterday and tomorrow. If one could only start the master clock the entire city would probably slide into gear and come to life, in an instant be re-peopled with its dynamic jostling millions.

They began to walk back towards the car. Conrad looked over his shoulder at the clock face, its gigantic arms upright on the silent hour.

"Why did it stop?" he asked.

Stacey looked at him curiously. "Haven't I made it fairly plain?"

"What do you mean?" Conrad pulled his eyes off the scores of clocks lining the plaza, frowned at Stacey.

"Can you imagine what life was like for all but a few of the thirty million people here?"

Conrad shrugged. Blue and yellow clocks, he noticed, outnumbered all others; obviously the major governmental agencies had operated from the plaza area. "Highly organised but better than the sort of life we lead," he replied finally, more interested in the sights around him. "I'd rather have the telephone for one hour a day than not at all. Scarcities are always rationed, aren't they?"

"But this was a way of life in which everything was scarce. Don't you think there's a point beyond which human dignity is surrendered?"

Conrad snorted. "There seems to be plenty of dignity here. Look at these buildings, they'll stand for a thousand years. Try comparing them with my father. Anyway, think of the beauty of the system, engineered as precisely as a watch."

"That's all it was," Stacey commented dourly. "The old metaphor of the cog in the wheel was never more true than here. The full sum of your existence was printed for you in the newspaper columns, mailed to you once a month from the Ministry of Time."

Conrad was looking off in some other direction and Stacey pressed on in a slightly louder voice. "Eventually, of course, revolt came. It's interesting that in any industrial society there is usually one social revolution each century, and that successive revolutions receive their impetus from progressively higher social levels. In the eighteenth century it was the urban proletariat, in the nineteenth the artisan classes, in this revolt the white collar office worker, living in his tiny-so-called modern flat, supporting through credit pyramids an economic system that denied him all freedom of will or personality, chained him to a thousand clocks . . ." He broke off. "What's the matter?"

Conrad was staring down one of the side streets. He hesitated, then asked in a casual voice : " How were these clocks driven ? Electrically ? "

" Most of them. A few mechanically. Why ? "

" I just wondered . . . how they kept them all going. " He dawdled at Stacey's heels, checking the time from his wrist watch and glancing to his left. There were twenty or thirty clocks hanging from the buildings along the side street, indistinguishable from those he had seen all afternoon.

Except for the fact that one of them was working !

It was mounted in the centre of a black glass portico over an entrance-way fifty yards down the right-hand side, about eighteen inches in diameter, with a faded blue face. Unlike the others its hands registered 3.15, the correct time. Conrad had nearly mentioned this apparent coincidence to Stacey when he had suddenly seen the minute hand move on an interval. Without doubt someone had re-started the clock ; even if it had been running off an inexhaustible battery, after thirty-seven years it could never have displayed such accuracy.

He hung behind Stacey, who was saying : " Every revolution has its symbol of oppression . . . "

The clock was almost out of view. Conrad was about to bend down and tie his shoelace when he saw the minute hand jerk downwards, tilt slightly from the horizontal.

He followed Stacey towards the car, no longer bothering to listen to him. Ten yards from it he turned and broke away, ran swiftly across the roadway towards the nearest building.

" Newman ! " he heard Stacey shout. " Come back ! " He reached the pavement, ran between the great concrete pillars carrying the building. He paused for a moment behind an elevator shaft, saw Stacey climbing hurriedly into the car. The engine coughed and roared out, and Conrad sprinted on below the building into a rear alley that led back to the side street. Behind him he heard the car accelerating, a door slam as it picked up speed.

When he entered the side street the car came swinging off the plaza thirty yards behind him. Stacey swerved off the roadway, bumped up onto the pavement and gunned the car towards Conrad, throwing on the brakes in savage lurches, blasting the horn in an attempt to frighten him. Conrad side-stepped out of its way, almost falling over the bonnet, hurled himself up a narrow stairway leading to the first floor and

raced up the steps to a short landing that ended in tall glass doors. Through them he could see a wide balcony that ringed the building. A fire escape criss-crossed upwards to the roof, giving way on the fifth floor to a cafeteria that spanned the street to the office building opposite.

Below he heard Stacey's feet running across the pavement. The glass doors were locked. He pulled a fire extinguisher from its bracket, tossed the heavy cylinder against the centre of the plate. The glass slipped and crashed to the tiled floor in a sudden cascade, splashing down the steps. Conrad stepped through onto the balcony, began to climb the stairway. He had reached the third floor when he saw Stacey below, craning upwards. Hand over hand, Conrad pulled himself up the next two flights, swung over a bolted metal turnstile into the open court of the cafeteria. Tables and chairs lay about on their sides, mixed up with the splintered remains of desks thrown down from the upper floors.

The doors into the covered restaurant were open, a large pool of water lying across the floor. Conrad splashed through it, went over to a window and peered down past an old plastic plant into the street. Stacey seemed to have given up. Conrad crossed the rear of the restaurant, straddled the counter and climbed through a window onto the open terrace running across the street. Beyond the rail he could see into the plaza, the double line of tyre marks curving into the street below.

He had almost crossed to the opposite balcony when a shot roared out into the air. There was a sharp tinkle of falling glass and the sound of the explosion boomed away among the empty canyons.

For a few seconds he panicked. He flinched back from the exposed rail, his ear drums numbed, looking up at the great rectangular masses towering above him on either side, the endless tiers of windows like the faceted eyes of gigantic insects. So Stacey had been armed, almost certainly was a member of the Time Police !

On his hands and knees Conrad scurried along the terrace, slid through the turnstiles and headed for a half-open window on the balcony.

Climbing through, he quickly lost himself in the building.

He finally took up a position in a corner office on the sixth floor, the cafeteria just below him to the right, the stairway up which he had escaped directly opposite.

All afternoon Stacey drove up and down the adjacent streets, sometimes free-whelling silently with the engine off, at others blazing through at speed. Twice he fired into the air, stopping the car afterwards to call out, his words lost among the echoes rolling from one street to the next. Often he drove along the pavements, swerved about below the buildings as if he expected to flush Conrad from behind one of the banks of escalators.

Finally he appeared to drive off for good, and Conrad turned his attention to the clock in the portico. It had moved on to 6.45, almost exactly the time given by his own watch. Conrad reset this to what he assumed was the correct time, then sat back and waited for whoever had wound it to appear. Around him the thirty or forty other clocks he could see remained stationary at 12.01.

For five minutes he left his vigil, scooped some water off the pool in the cafeteria, suppressed his hunger and shortly after midnight fell asleep in a corner behind the desk.

He woke the next morning to bright sunlight flooding into the office. Standing up, he dusted his clothes, turned around to find a small grey-haired man in a patched tweed suit surveying him with sharp eyes. Slung in the crook of his arm was a large black-barrelled weapon, its hammers menacingly cocked.

The man put down a steel ruler he had evidently tapped against a cabinet, waited for Conrad to collect himself.

"What are you doing here?" he asked in a testy voice. Conrad noticed his pockets were bulging with angular objects that weighed down the sides of his jacket.

"I . . . er . . ." Conrad searched for something to say. Something about the old man convinced him that this was the clock-winder. Suddenly he decided he had nothing to lose by being frank, and blurted out: "I saw the clock working. Down there on the left. I want to help wind them all up again."

The old man watched him shrewdly. He had an alert bird-like face, twin folds under his chin like a cockerel's.

"How do you propose to do that?" he asked.

Stuck by this one, Conrad said lamely: "I'd find a key somewhere."

The old man frowned. "One key? That wouldn't do much good." He seemed to be relaxing slowly, shook his pockets with a dull chink.

For a few moments neither of them said anything. Then Conrad had an inspiration, bared his wrist. "I have a watch," he said. "It's 7.45."

"Let me see." The old man stepped forward, briskly took Conrad's wrist, examined the yellow dial. "Movado Super-matic," he said to himself. "CTC issue." He stepped back, lowering the shotgun, seemed to be summing Conrad up. "Good," he remarked at last. "Let's see. You probably need some breakfast."

They made their way out of the building, began to walk quickly down the street.

"People sometimes come here," the old man said. "Sight-seers and police. I watched your escape yesterday, you were lucky not to be killed." They swerved left and right across the empty streets, the old man darting between the stairways and buttresses. As he walked he held his hands stiffly to his sides, preventing his pockets from swinging. Glancing into them, Conrad saw that they were full of keys, large and rusty, of every design and combination.

"I presume that was your father's watch," the old man remarked.

"Grandfather's," Conrad corrected. He remembered Stacey's lecture, and added: "He was killed in the plaza."

The old man frowned sympathetically, for a moment held Conrad's arm.

They stopped below a building, indistinguishable from the others nearby, at one time a bank. The old man looked carefully around him, eyeing the high cliff walls on all sides, then led the way up a stationary escalator.

His quarters were on the second floor, beyond a maze of steel grilles and strongdoors, a stove and a hammock slung in the centre of a large workshop. Lying about on thirty or forty desks in what had once been a typing pool, was an enormous collection of clocks, all being simultaneously repaired. Tall cabinets surrounded them, loaded with thousands of spare parts in neatly labelled correspondence trays—escapements, ratchets, cogwheels, barely recognisable through the rust.

The old man led Conrad over to a wall chart, pointed to the total listed against a column of dates. "Look at this. There are now 278 running continuously. Believe me, I'm glad you've come. It takes me half my time to keep them wound."

He made breakfast for Conrad, told him something about himself. His name was Marshall. Once he had worked in Central Time Control as a programmer, had survived the revolt and the Time Police, ten years later returned to the city. At the beginning of each month he cycled out to one of the perimeter towns to cash his pension and collect supplies. The rest of the time he spent winding the steadily increasing number of functioning clocks and searching for others he could dismantle and repair.

"All these years in the rain hasn't done them any good," he explained, "and there's nothing I can do with the electrical ones."

Conrad wandered off among the desks, gingerly feeling the dismembered time-pieces that lay around like the nerve cells of some vast unimaginable robot. He felt exhilarated and yet at the same time curiously calm, like a man who has staked his whole life on the turn of a wheel and is waiting for it to spin.

"How can you make sure that they all tell the same time?" he asked Marshall, wondering why the question seemed so important.

Marshall gestured irritably. "I can't, but what does it matter? There is no such thing as a perfectly accurate clock. The nearest you can get is one that has stopped. Although you never know when, it is absolutely accurate twice a day."

Conrad went over to the window, pointed to the great clock visible in an interval between the rooftops. "If only we could start that, and run all the others off it."

"Impossible. The entire mechanism was dynamited. Only the chimera is intact. Anyway, the wiring of the electrically driven clocks perished years ago. It would take an army of engineers to recondition them."

Conrad nodded, looked at the scoreboard again. He noticed that Marshall appeared to have lost his way through the years—the completion dates he listed were seven and a half years out. Idly, Conrad reflected on the significance of this irony, but decided not to mention it to Marshall.

For three months Conrad lived with the old man, following him on foot as he cycled about on his rounds, carrying the ladder and the satchel full of keys with which Marshall wound up the clocks, helping him to dismantle recoverable ones and carry them back to the workshop. All day, and often through

half the night, they worked together, repairing the movements, re-starting the clocks and returning them to their original positions.

All the while, however, Conrad's mind was fixed upon the great clock in its tower dominating the plaza. Once a day he managed to sneak off and make his way into the ruined Time buildings. As Marshall had said, neither the clock nor its twelve satellites would ever run again. The movement house looked like the engine room of a sunken ship, a rusting tangle of rotors and drive wheels exploded into contorted shapes. Every week he would climb the long stairway up to the topmost platform two hundred feet above, look out through the bell tower at the flat roofs of the office blocks stretching away to the horizon. The hammers rested against their trips in long ranks just below him. Once he kicked one of the treble trips playfully, sent a dull chime out across the plaza.

The sound drove strange echoes into his mind.

Slowly he began to repair the chimer mechanism, rewiring the hammers and the pulley systems, trailing fresh wire up the great height of the tower, dismantling the winches in the movement room below and renovating their clutches.

He and Marshall never discussed their self-appointed tasks. Like animals obeying an instinct they worked tirelessly, barely aware of their own motives. When Conrad told him one day that he intended to leave and continue the work in another sector of the city, Marshall agreed immediately, gave Conrad as many tools as he could spare and bade him goodbye.

Six months later, almost to the day, the sounds of the great clock chimed out across the rooftops of the city, marking the hours, the half-hours and the quarter-hours, steadily tolling the progress of the day. Thirty miles away, in the towns forming the perimeter of the city, people stopped in the streets and in doorways, listening to the dim haunted echoes reflected through the long aisles of apartment blocks on the far horizon, involuntarily counting the slow final sequences that told the hour. Older people whispered to each other : " Four o'clock, or was it five ? They have started the clock again. It seems strange after these years."

And all through the day they would pause as the quarter and half hours reached across the miles to them, a voice from their childhoods reminding them of the ordered world of the past. They began to reset their timers by the chimes, at night

before they slept they would listen to the long count of midnight, wake to hear them again in the thin clear air of the morning.

Some went down to the police station and asked if they could have their watches and clocks back again.

After sentence, twenty years for the murder of Stacey, five for fourteen offences under the Time Laws, to run concurrently, Newman was led away to the holding cells in the basement of the court. He had expected the sentence and made no comment when invited by the judge. After waiting trial for a year the afternoon in the courtroom was nothing more than a momentary intermission.

He made no attempt to defend himself against the charge of killing Stacey, partly to shield Marshall, who would be able to continue their work unmolested, and partly because he felt indirectly responsible for the policeman's death. Stacey's body, skull fractured by a twenty or thirty-storey fall had been discovered in the back seat of his car in a basement garage not far from the plaza. Presumably Marshall had discovered him prowling around and dealt with him single-handed. Newman recalled that one day Marshall had disappeared altogether and had been curiously irritable for the rest of the week.

The last time he had seen the old man had been during the three days before the police arrived. Each morning as the chimes boomed out across the plaza Newman had seen his tiny figure striding briskly down the plaza towards him, waving up energetically at the tower, bare-headed and unafraid.

Now Newman was faced with the problem of how to devise a clock that would chart his way through the coming twenty years. His fears increased when he was taken the next day to the cell block which housed the long-term prisoners—passing his cell on the way to meet the superintendent he noticed that his window looked out onto a small shaft. He pumped his brains desperately as he stood to attention during the superintendent's homilies, wondering how he could retain his sanity. Short of counting the seconds, each one of the 86,400 in every day, he saw no possible means of assessing the time.

Locked into his cell, he sat limply on the narrow bed, too tired to unpack his small bundle of possessions. A moment's

inspection confirmed the uselessness of the shaft. A powerful light mounted half way up masked the sunlight that slipped through a steel grille fifty feet above.

He stretched himself out on the bed and examined the ceiling. A lamp was recessed into its centre, but a second, surprisingly, appeared to have been fitted to the cell. This was on the wall, a few feet above his head. He could see the curving bowl of the protective case, some ten inches in diameter.

He was wondering whether this could be a reading light when he realised that there was no switch.

Swinging round, he sat up and examined it, then leapt to his feet in astonishment.

It was a clock ! He pressed his hands against the bowl, reading the circle of numerals, noting the inclination of the hands. 4.53, near enough the present time. Not simply a clock, but one in running order ! Was this some sort of macabre joke, or a misguided attempt at rehabilitation ?

His pounding on the door brought a warder.

"What's all the noise about ? The clock ? What's the matter with it ?" He unlocked the door and barged in, pushing Newman back.

"Nothing. But why is it here ? They're against the law."

"Oh, is that what's worrying you." The warder shrugged. "Well, you see, the rules are a little different in here. You lads have got a lot of time ahead of you, it'd be cruel not to let you know where you stood. You know how to work it, do you ? Good." He slammed the door, bolted it fast, smiled at Newman through the cage. "It's a long day here, son, as you'll be finding out, that'll help you get through it."

Gleefully, Newman lay on the bed, his head on a rolled blanket at its foot, staring up at the clock. It appeared to be in perfect order, electrically driven, moving in rigid half-minute jerks. For an hour after the warder left he watched it without a break, then began to tidy up his cell, glancing over his shoulder every few minutes to reassure himself that it was still there, still running efficiently. The irony of the situation, the total inversion of justice, delighted him, even though it would cost him twenty years of his life.

He was still chuckling over the absurdity of it all two weeks later when for the first time he noticed the clock's insanely irritating tick . . .

J. G. Ballard

Article

We must apologise for the lateness of this article dealing with one of the most important scientific discoveries of the present century—the Van Allen Belts, often referred to in recent stories. The article has been on hand for many months but it has not been possible to present it until now.

The Belts Of Van Allen

by KENNETH JOHNS

No ' Danger ' signs are posted above the Earth ; but there is a deadly fence up there, a barrier lethal to the unprepared space traveller.

This fence is an area consisting of zones of radiation which bear the name of their discoverer—Van Allen. They stretch thousands of miles out into space as well as brushing the atmosphere with deadly fingers to trace out the aurora polaris. Only the glow of the aurora and the faint persistence of the airglow give visible warning of the ten million electron volt particles that are concentrated around the Earth.

Two physicists had a glimmering of what might be happening out in space. Fifty years ago Carl Störmer suggested that low energy particles could be trapped in the Earth's magnetic field and derived equations for their paths. He didn't realise just how well they could be stored or how energetic and intense they were.

The second scientist was Nicholas Christofilos who, two years ago, suggested that electrons released by nuclear explosions could be trapped for long periods by magnetic lines of force above the atmosphere. When it was discovered that there was already a natural radiation zone in existence, the military brains paid more attention to these ideas and the result was Project Argus.

Yet the story really begins back in the early 1950's, when Van Allen was one of the prime movers in American cosmic ray research. During the war he had helped with the research on radar proximity fuses for shells and his experience with miniature electronic components was later to stand him in good stead.

It was Van Allen who used captured V-2's to measure cosmic rays at high altitudes—when he learned about rockets and rocketmen. It was Van Allen who drew up specifications for the *Aerobee* research rocket and talked the US Navy into giving him a ship to monitor cosmic rays all over the Earth.

He was also a prime mover in the IGY and developed the £250 rockoon balloon-rocket combination when funds were low, as well as proposing that astronomers should use balloon-carried telescopes to photograph the Sun. It was his students firing rockets from coastguard ships off the coast of Newfoundland who found the first hint of something strange above the Earth. In 1953 a zone of intense radiation from 30 miles upwards was discovered by two rockoons. The zones were in the regions where the aurora was most intense, but, strangely enough, were not immediately over the North magnetic pole nor did their intensity vary with changes in the aurora.

The radiation was found to be X-rays produced by high speed electrons smashing into the cosmic ray counters in the instruments heads of the rockets. By 1957 it was shown that a similar ring surrounded the south magnetic pole ; but its origin was still a mystery. If these rings had been due to electrons and hydrogen nuclei shot out from the Sun and guided into the Earth by lines of magnetic force, they would have been most intense over the magnetic poles and would have varied in intensity with the activity on the sun's surface.

The behaviour of charged particles such as electrons and protons in magnetic fields is well known ; they spiral along the lines of magnetic force. Not quite so well known is the 'mirror' effect when, as lines of magnetic force become more

tightly packed together, the particles are forced into tighter and tighter spirals until they are reflected back the way they came.

This mirror oddity is finding use in the thermonuclear machines to prevent the hot plasma hitting the walls of the containers.

Van Allen realised that his instruments had to go hundreds and thousands of miles above Earth to settle the problems his rocket and balloon probes had raised. In Russia, Professor Vernov and Dr. Chodakov were following the same lines. So, logically, Van Allen pushed the need for artificial satellites. When *Vanguard* was slow in appearing and *Sputnik I* blazed the trail into space, the Americans found that Van Allen's year-old suggestion that the *Jupiter C* vehicle should be used as a satellite launcher was not a crackpot notion.

It was no coincidence that the Van Allen 5½-inch instrument container for the *Vanguard* satellite fitted neatly into the 6-inch *Explorer I* satellite.

So, from January 31st, 1958, Van Allen's instruments were reporting back to him from space. These instruments were just a Geiger counter and a radio and they showed that radiation slowly increased with altitude, as was expected. But it was not expected that the counter should show no counts at all at high altitudes over the Equator.

No one believed that there were no cosmic rays up there ; but data was patchy because *Explorer I* broadcast continuously and only a few of the signals were picked up. This was rectified in *Explorers II* and *III* by using tape recorders to store the data and then fire it in bursts upon receipt of a radio trigger signal from the ground.

Explorer II failed but *III* went into orbit on 26th March, 1958. Again there was this strange zero count above 600 miles up but the mystery which might have deepened with this was cleared up when Van Allen and his colleagues realised that their counter were being overloaded by an intense flood of radiation. Since space itself was not radio-active, then they had run into a belt above Earth thousands of times more intense than the normal cosmic radiation. This they reported on 1st May, 1958, two weeks before *Sputnik III* went up carrying scintillation counters to chart accurately this newly discovered zone.

These zones had to be charged particles trapped in the Earth's magnetic field, particles shuttling backwards and

forwards every second between the magnetic mirrors above the North and South magnetic poles. A few leaked down, escaping the field, to strike the atmospheric oxygen and nitrogen nuclei to create the aurora polaris.

There were still many unanswered questions : How large were the zones ? What were the particles ? Where did they originate ? How were they injected into the terrestrial magnetic field ? How long were they trapped on the average ? How did their intensity vary with time and how disastrous was the belt going to prove to space travel ? And this last question loomed in some people's minds as the most ominous of all.

Explorer IV went up on 26th July, 1958 carrying instruments to check some of these points. It had an orbit at 51° to the Equator so that it ranged over a large part of the Earth up to 1500 miles high. It soon showed that even the lower fringes of the radiation were a hazard to space travel and that there were rings around the magnetic poles where the radiation dipped closer to the ground. The results now also showed the possibility of there being two belts.

The *Explorer IV* satellite was also intended to monitor high altitude nuclear explosions. On 1st August and 12th August, 1958 large nuclear weapons were exploded 50 and 100 miles above Johnston Island in the Pacific. Although not high enough to inject particles into the Van Allen shell, these explosions were still able to create an aurora 2,000 miles away over Samoa.

Then *Project Argus* was carried out in conditions of utmost secrecy. Using X-17a solid fuel rockets, three small nuclear warheads, each with the power of 1500 tons of TNT, were fired from the USS *Norton Sound*, the converted seaplane tender that figures so prominently in the history of rocketry. They were exploded 300 miles up on 27th and 30th August and 6th September, 1958 off the Falkland Islands in the South Atlantic.

High speed electrons, unimpeded by the atmosphere, flashed into the Earth's magnetic trap and began to shuttle from North to South and back again. They formed a belt 100 miles deep and there was less than a 20-mile variation in its depth during the weeks in which it was plotted. At its intensest, this artificially created radiation was as intense as the natural Van Allen radiation. In addition, an aurora was formed 8,000 miles away in the North Atlantic.

Van Allen's instruments went out in moonprobe *Pioneer I* on 11th October, 1958 but they showed only that the belts were large and maximum intensity was reached 10,000 miles from Earth.

Pioneer II failed but *Pioneer III* was a brilliant success, charting the radiation whilst swinging out and returning from 6th December, 1958 on. The existence of two belts of radiation was proved. One has a maximum intensity at 2,000 miles and the other at 10,000 miles above Earth. In their cores 40,000 particles per second pour through each square centimetre instead of a normal cosmic ray background of 3-4 particles. The radiation is equivalent to 5 roentgens per hour if it consists of electrons and 100 roentgens per hour if protons. 500 roentgens is lethal in the case of half the humans exposed to it, and the other half is made awfully sick.

In January 1959 *Lunik* went out past the Moon, reporting back to the USSR scientists for 90,000 miles of its journey. The Sun was then quiet and *Lunik* met nothing beyond the Van Allen belts except the normal cosmic rays. Then *Pioneer IV* gave a 400,000 miles report on space radiation, meeting several clouds of plasma, electrons and protons shot out from the Sun and surging chaotically out among the planets.

Next on the Van Allen list is a 20-lb satellite with solar batteries and an orbit out to a 24,000 mile apogee to trace out the changes in intensity of the belts as the solar sunspot cycle decreases and then increases the plasma clouds from the Sun.

There have been many suggestions as to the composition and origin of the belts. The Russians state that the outer belt is mainly low energy electrons in the 30,000 to 100,000 electron volt range, whilst the inner belt is of 10 million volt protons. The X-rays from the latter will be far more difficult to screen in man-carrying spaceships than those from low energy electrons.

The origin of the Van Allen belts is not yet firmly established. One theory holds that the inner and outer belts have separate origins whilst Thomas Gold considers that they both consist of particles from the Sun trapped in Earth's magnetic field, the higher energy particles leaking down to form the inner belt. In view of the Project Argus Belt stability, this does not seem very probable.

It seems generally accepted that the outer belt does consist of solar electrons trapped by some unknown mechanism.

However, Professor Singer and the Russian Vernov blame the inner particles on the Earth's cosmic ray albedo—that is neutrons produced by collisions of cosmic rays with atmospheric nuclei scatter back into space and, being uncharged, are not influenced by magnetic fields. But neutrons decay radioactively with a half-life of about 12 minutes, producing energetic electrons and protons that can be trapped. But their rate of formation is very slow and, even with the efficient storage in the belt, may not be high enough to account for the whole of the inner belt.

If the cosmic ray albedo is its creation, Professor Singer points out that it should be a simple matter to mop up the protons with a few large artificial satellites.

Two Russians, Shklovsky and Krasovsky, suggest that the outer belt is created by acceleration of solar plasma within the Earth's field, but agree that the mechanism is obscure. Also, they attribute the powerful lower Van Allen belt to high altitude nuclear tests—a serious possibility which is being critically considered by the Americans.

It would be typical of our age if one multi-million dollar scientific programme was trying to establish the origin of particles being produced by another multi-million dollar project.

Kenneth Johns

THE LITERARY LINE-UP

There is insufficient room this month to inform you of all the good stories coming next month but the big item is a new Kenneth Bulmer serial "The Fatal Fire," a story of the far future when the political and economic 'Combines of the Galaxy fight a bloodless war for power.

Story ratings for No. 90 were :

- | | | | | | |
|----|----------------------------|---|---|---|-----------------|
| 1. | Time Out Of Joint (Part 2) | - | - | - | Philip K. Dick |
| 2. | O'Mara's Orphan | - | - | - | James White |
| 3. | Mumbo-Jumbo Man | - | - | - | Philip E. High |
| 4. | Under An English Heaven | - | - | | Brian W. Aldiss |

With push-button warfare imminent and America planning an underground survival city in case of an atomic holocaust the poor infantryman on the surface is going to need some drastic psychological treatment if he is to be able to function at all.

SOLDIERS RUNNING

by BRIAN W. ALDISS

Sgt. Taylor was dreaming.

He was a certain colonel whose barracks were far below ground. In the mess, the Special Wing was making merry. The place was overcrowded, both with long trestle tables full of food and wine, and with soldiers and the women who had been invited to attend. Despite the spartan aspect of the mess, the atmosphere was of festival—that especially hectic kind of festival held by men whose motto is the grim old motto : Eat, drink, and be merry, for tomorrow we die.

The colonel was eating and drinking, but he was not yet merry. Although it pleased him to see his men making merry, he was cut off from them by their merriment. He still knew what they had forgotten, that at any moment the summons might come. And then they would leave, and collect their equipment, and go Above, to face whatever dark things had to be faced.

All this was a part of the colonel's profession, his life. He did not resent it, nor did he particularly fear it ; he felt only a mild attack of something very like stage fright.

The faces around him had receded into a general blur. Now he focussed on them, wondering idly who and how many would accompany him on the mission. He glanced too at the women.

Under duress of war, all military had retreated underground. Conditions below were harsh and well nigh intolerable, only mitigated by generous supplies of the new synthetic foods and drinks. After a decade of war, plankton brandy tastes as good as the real thing—after the real thing has ceased to exist. The women were not synthetic. They had forsaken the ruinous towns Above for the comparative safety of the subterranean garrison towns. In so doing, most of them had saved their lives only to lose their humanity. They fought and screamed over their men, caring little for what they won.

The colonel looked at them with both compassion and contempt. Whichever side won the war, women had already lost it.

Then he saw a face that was neither laughing nor shouting.

It belonged to a woman sitting almost opposite him at his table. She sat listening to a blurry-eyed, red-faced corporal, whose heavy arm lay over her shoulder as he spun her some rambling tale of woe. Mary, the colonel thought ; she must be called something simple and sweet like Mary.

Her face was ordinary enough, except that it bore none of the marks of viciousness and vulgarity so common in this age. Her hair was light brown, her eyes an enormous blue grey. Her lips were not thin, though her face was.

Mary turned and saw the colonel regarding her. She smiled at him.

The moments of revolution in a man's life come silently and unexpectedly. The colonel had been an ordinary soldier ; when Mary smiled, he became something more complex. He saw himself as he was : a man in his middle forties who had surrendered everything personal to becoming part of a military machine. This sad, beautiful, ordinary, face told of all he had missed, of all the richer side of life real only to a man and woman who love each other.

It told him more. It told him that even now it was not too late for him. For the face was a promise as well as a reproach.

All this and more ran through the colonel's mind, and some of it was reflected through his eyes. Mary, it was clear, understood something of his expression.

"Can you get away from him?" the colonel said, with a note of pleading in his voice.

Without looking at the soldier whose arm lay so heavily over her shoulders, Mary answered something. What she said it was impossible to hear in the general hubbub. Seeing her pale lips move, in an agony at not hearing what she was saying, the colonel called to her to repeat her sentence.

At that moment the duty siren sounded.

The uproar redoubled. Military Police came pouring into the mess, pushing and kicking the drunks onto their feet and marching them out of the door.

Hopelessly, the colonel rose to his feet. Leaning across the table and touching Mary's hand, he said, "I must see you again and speak to you. If I survive this mission I will be here tomorrow night. Will you meet me?"

A fleeting smile.

"I'll be here," she said.

Hope flooded into him. Love, gratitude, all the secret springs of his nature poured forth into his veins. Then he turned towards the doors.

Just outside, a tube truck was waiting. The Special Wing staggered or was pushed into it. When all were accounted for, the doors closed and the tube moved off, snoring into the tunnel on an upward gradient.

It stopped again at Medical Bay, where orderlies with alcoholometers awaited them. Anyone who flipped the needle was instantly given an anti-toxic drug. The colonel, for all that he had drunk little, had to submit to an injection. The alcohol in his blood was neutralised almost at once. Within five minutes, everyone in the room was stone cold sober again. To wage war in its present form would not have been possible without drugs.

The party, quieter now and with set faces, climbed back into the tube. It rose on an ascending spiral of tunnel, depositing them next at Briefing. They were now near the surface.

Accompanied by a few under-officers and N.C.O.'s, the colonel entered Information Briefing. The rest of his men—or those picked for this particular mission—went to Morale Briefing. Here, film and television would prepare them by direct and subliminal means for the hazards to come.

The colonel and his party faced a brigadier who began speaking as soon as they sat down.

"We have something fresh for you today. The enemy is trying a new move, and we have a new move to counteract it. The six of you will take only eighteen men with you on this mission. You will be lightly armed, and your safety will depend entirely on the element of surprise. When I tell you that if all goes well we expect to have you back here in ten hours, I do not want you to forget that those ten hours may vitally affect the whole outcome of the war."

He went on to describe their objective. The picture was simple and clear as it built up in the colonel's mind. He discarded all details but the key ones. Half way round the world, the enemy was in some strength in a forest. In the middle of the forest was an old circular wooden building, five stories high. On the top story of this building, looking over the treetops, was a control room from which fleets of missiles could be launched.

The control room was also a weather station, and it was for this reason it had been more convenient to situate it above ground. When the right weather prevailed over enemy territory, the missiles would be launched. They contained bacteria.

"We stand to have a major plague on our hands if this set-up is not put out of action at once," the brigadier said. "Another force has been given the task of wiping out the launching site, but it's underground and difficult to locate. First we must put the control room out of action, and that is your job."

"An anti-cyclone is building up over us now. Reports show that conditions should be ideal for an enemy launching in ten to twelve hours. We have to kill them before that."

He then described the forces to be met with in the forest. They were heavy, but badly deployed as yet. Only the paths through the forest were defended, since vehicular attack through the trees was impossible.

"This is where you and your men come in, Colonel. Our laboratories, bless 'em, have just turned up with a new wonder drug called Fast-Plus. As far as I can understand, it's a development of the old pep pills. Unfortunately it's still rather in the experimental stage, but desperate situations call for desperate remedies . . ."

At last the briefing was over, and the officers were joined by the men who had been selected to accompany them. The

twenty-four of them then marched to an armoury, where they were equipped with special weapons and combat suits. Then they took one of the big elevators to Above.

On the surface it was still night. In a diesel truck they rode over to a landing strip, ventilator shafts and ruins of an old surface town vague smudges in the darkness that encompassed them. A plane awaited them. In ten minutes they were all aboard and strapped into position.

A high-ranking medical man entered. In a pouch strapped to his belt he carried the supply of Fast-Plus. This he would administer when they reached the enemy forest ; now, he had a preparatory tranquilizer for them which would render the Fast-Plus more effective later. He administered this tranquilizer to them orally just before they took off.

The plane moved upwards with a sickening bound. Twenty four men subsided into a drugged coma as they hurtled high into the stratosphere, as they reached the margins of space, as they glittered in sunlight before turning to fall back like a stone towards Earth. Below them, out of the bowl of night, the enemy forest swam.

Under double parachutes, descending vertically, they braked and landed in an acre of bracken beneath the shadow of the first trees. The sedation period ended as the hatch swung open.

"Let's have you outside quietly, men," the colonel said.

He checked his chronometer with the pilot's before leaving. It was 0622 hours, with dawn in the offing and a chill breeze irritating the grass.

The medico came round with the Fast-Plus, which was made into boomerang-shaped capsules that fitted against the bottom teeth under the tongue.

"Don't bite on them until the colonel gives the word," he said. "And remember, don't worry about yourselves. Just get back to your plane and we'll take care of the after effects."

"Famous last words," someone muttered.

The medico hurried back to his plane. It would be off as soon as they were gone ; the special wing had to rendezvous with another one elsewhere when the mission was over. Fast-Plus pills in their mouths, the party set off for the trees in single file. Almost at once, a heavy gun opened fire.

"Keep your heads down. It's after the plane, not us," the colonel said. The gun's jerky bursts suggested it was radar-controlled and having trouble from the plane's baffle equip-

ment. He dismissed it from his mind. They would have worries of their own in a moment.

The worries came sooner than he had expected. A strobo-light came on, its nervous blink fluttering across the clearing, washing everything in its path with white. At the same time, the colonel's helmet beeped, telling him a radio eye had spotted him.

"Down flat!" he roared.

The air crackled with death as they flung themselves down. On their bellies they crawled into a hollow.

"We'll split into our five groups now," the colonel said. "One and two to my left, four and five to my right. Seventy seconds from now I'll blow my whistle; crunch your pills then and be off. Good luck. Move."

Twenty men moved. Four stayed with the colonel. Ignoring the racket in the clearing, he watched the smallest hand on his chronometer, whistle in his left fist. As he had hoped, the noise had died as he blew his blast. He crunched his capsule and rose, the four men beside him.

They ran for the wood. They were among the trees.

The other four groups of five were among the trees also. Three of them were decoy groups. Only one of the other groups, number four, was actually due to reach the round building, approaching by a different route from the colonel's.

As they entered the forest, the drug took effect. A slight dizziness seized the colonel, a singing started in his ears. Against this minor irritation, a vast comfort swept through his limbs. He began to breathe more rapidly, and then to think and move more rapidly. His whole metabolism was accelerating.

Alarm filled him momentarily, although he had been primed on what to expect. The alarm came from some deep and unplumbed personal core in him, a place that resented this tampering with its personal rhythm. Coupled with it came a vivid picture of Mary's face, as if the colonel by submitting to this drug was somehow defiling her. Then the image and the alarm were gone, leaving the colonel clear and superb.

Now he was sprinting, his men beside him. They flicked round dense bush, leaving the clearing behind. A searchlight burst into life, sweeping its narrow beam among the tree trunks in a confusing pattern of light and shade. As it caught group three, the colonel shot it out.

He had acted fast, hardly realising he was firing. The guns they carried had special light-touch trigger actions to respond to their new tempo.

A burst of firing answered his shot, but it fell behind them. They were moving faster, already breaking records.

They wove fast among the trees. Dawn gave them light to see by. Opposition, as Briefing had forecast, was scattered. Mainly they ran uninterruptedly. They passed caravans, camouflaged vehicles, tanks, tents, some containing sleeping men. All these they skirted. Anything moving they shot. A fifty percent acceleration of perception and motion turned them into supermen.

Absolute calm ruled in the colonel's mind. He moved like a deadly machine. Sight and sound came through with ultra-clarity. He seemed to observe movement before it began. Noise played round him. A world of noise surrounded him.

He heard the rapid hammer of his heart, his breathing, the breathing of his fellows, the rustle of their limbs inside their clothes. He heard the crackle of twigs beneath their feet, faint shouts in the forest, distant shots—presumably marking the whereabouts of another group. He seemed to hear everything in the world.

They covered the first mile in five minutes, the second in under four. Occasionally the colonel glanced at his wrist compass, but a mystic sense seemed to keep him on course.

When an unexpected burst of firing from a flank killed one of the group, the other four raced on without pause. It was as if they could never stop running.

The second mile was easy, and most of the third. Normally, the enemy was prepared for any eventuality : but that did not include a handful of men running. The idea was too laughable to be entertained. The colonel's group got through only because it was impossible.

Now they were almost at destination. Some sort of warning of their approach had been given. The trees were spaced more widely, anti-tank guns were being rolled up, machine gun posts manned. Strengthening, the light began to favour the enemy.

"Scatter !" the colonel shouted, as a gun barked ahead. His voice sounded curiously high in his own ears.

His men swerved apart, keeping each other in sight. They were moving like shadows now, limbs flickering, brains alight. They ran. They did not fire.

The machine gun posts opened up. Missing four phantoms' they kept up their chatter in preparation for a main body of

men who never arrived. The phantoms plunged on, tormented most by the noise, which bit like acid into their eardrums.

Again the phantoms grouped in a last dash. Through the trees loomed a round wooden building. They were there !

The four fired together as a section of the enemy burst from a nearby hut. They shot a machine gunner dead as he swung his barrel at them. They hurled grenades into a sandbagged strong point. Then they were in the control post.

It was as briefing had described it. The colonel leading, the four bounded up the creaking spiral stair. Doors burst open as they mounted. But the enemy moved with a curious sloth and died without firing a shot. In three seconds flat they were at the top of the building.

Breathing rapidly, the colonel flung open a door, the only door on this storey.

This was the weather and control room.

Apparatus had been piled up in disorderly fashion, bearing witness to the fact that the enemy had only moved in here a comparatively few hours ago. But there was no mistaking the big weather charts on the walls—or the control console in the centre of the room. Right here was the point from which the bacteria-bearing missiles took their ultimate orders.

Several of the enemy were in the room. The firing nearby had alarmed them. One spoke into a phone, while except for one other the rest stared out of the windows anxiously. The one other sat at the firing console. He saw the colonel first.

Astonishment and fear came onto his face, slackening the muscles there, dropping his mouth open. He slid round in his seat, lifting his hand at the same time to reach out for the press buttons. To the colonel, he appeared to be moving in ultra-slow-motion, just as in ultra-slow-motion the other occupants of the room were turning to face their enemy.

Emitting a high squeal like a bat's, the colonel twitched his right index finger slightly. He saw the bullet speed home to its mark. Raising hands to his chest, the push button man toppled off his stool and fell beside the console.

One of the colonel's men tossed an incendiary grenade into the room. They were running back down the spiral stairs as it roared into life. Again doors burst open on them, again they fired without thought. The grenade thrower squealed and plunged head first down the stairs. His three companions ran past him, out into the wood.

Setting his new course, the colonel led his two men towards their rendezvous. This was the easiest part of their mission ; they came on the scattered enemy from an unexpected quarter and were gone before he realised it. Behind them, a wooden building blazed.

They had four miles to go this way. After the first mile, the maximum effect of the drug began to wear off. The colonel was aware that the abnormal clarity of his brain was changing into deadness. He ran on.

Sunshine broke through in splinters onto the carpet of the forest. Each fragment was incredibly sharp and memorable. Each noise underfoot was unforgettable. A slight breeze in the treetops was a protracted bellow as of an ocean breaking on rock. His own breathing was an adamantine clamour for air. He heard his bones click-click-click in their sockets, his muscles and sinews swishing in the gravies of their blood.

At the end of the third mile, one of the colonel's two men collapsed without warning. His face was black and he hit the ground with the sound of a felled tree, utterly burnt out. The others never paused.

The colonel and his fellow reached the rendezvous. They lay twitching in a ditch until the plane came for them. By then there were twelve twitching men to carry away, all that was left of the original party. Two medical orderlies hustled them rapidly into bunks, sinking needles into their arms to stop their twitching.

Seemingly without interval, it was twelve hours later.

Again the colonel sat in the mess. Despite the fatigue in his limbs, he had willed himself to come here. He had a date with Mary.

The junketting was getting into full swing about him, the nightly tide of debauchery and drunkenness was rising. Many of these men, like the colonel himself, had faced death during the day ; many more would be facing it tomorrow. Their duty was only to survive : their health was kept in capsules.

The colonel sat at the end of one long table, close to the wall, keeping an empty chair next to him as the room filled. His ears echoed and ached with the noise about him. Wearily, he looked about for Mary.

Only after half an hour had passed did he feel the first twinge of apprehension. He did not know her real name. The

events of the day, the rigours of the mission, had obliterated the memory of her face. She had smiled, yes. She had looked ordinary enough, yes. No . . . he knew not a thing about her except the hope she had stirred in him.

An hour passed, and still the chair was empty beside him. He sat on and on, submerged in noise. Probably she was in bed with the drunk who had had his arm round her yesterday. Boom boom boom went the meaningless din, and the chair remained empty beside him.

It was after two in the morning. The mess was emptying again. The symbolism of the chair hit the colonel suddenly. Mary would not come. She would never come. He was just a soldier ; there would be an empty chair beside him all his life. No Mary would ever come. Bitterly he pressed his face into his hands, trying to bury himself in those hard palms.

This was Sgt. Taylor's dream, and it woke him crying in his hospital bed.

He wept and shuddered until the shouts of men in nearby beds brought him back to reality. Then he lay back and marvelled about his dream, ignoring the pain of his shattered eardrums.

The dream was a wonderful mixture of reality and super-reality. Every detail concerning the raid had been accurately reconstructed. Just like that, he had led his men to success a very few hours ago. The Fast-Plus pills had behaved in the dream as in real life.

Only in two details had Sgt. Taylor's dream transcended reality—

"Hell, what the hell was you dreaming about?" asked the fellow in the next bed. "Some dame stand you up or something?"

Sgt. Taylor nodded vaguely, seeing the man's lips move. Well, they had said there might be after-effects. Perhaps even now someone was inventing a drug to grow you new eardrums . . .

Only in two details had his dream transcended reality.

He had never seen nor consciously looked for any Mary. Yet the authority of the dream was such that he knew that through all the thoughtless debauchery of his life a Mary was what he had been seeking. He knew too the dream predicted correctly : given his type of life, given the conditions in the

underground barracks, there would never be a Mary for him. Women there were, but not women like Mary.

The other detail fitted with the first one—

“Or maybe the way you was squealing you was Above, playing soldiers again, huh?” suggested the fellow in the next bed.

Sgt. Taylor smiled meaninglessly and nodded at the moving lips. He was in a world of his own at present ; and he liked it.

Yes, the other detail fitted with the first. In his dream he had promoted himself to colonel. It could be a typical piece of oneiric self-aggrandisement ; but more likely it was something deeper than that, another slice of prediction matching the first.

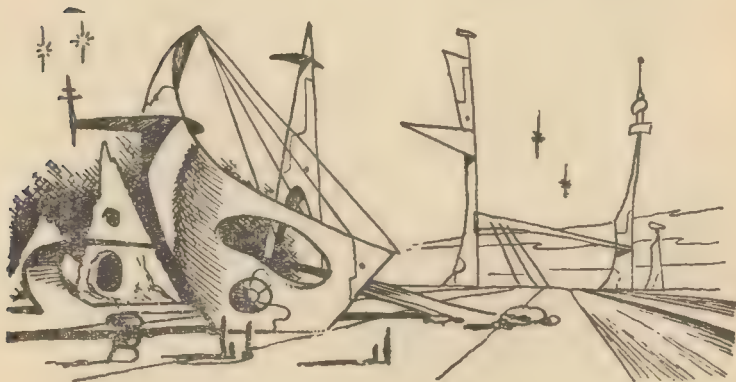
Sgt. Taylor was a soldier. He had been a soldier for a long time, but now he was realising it all through. That made him soldier-plus. Mary was the softer side of his life, the unfulfilled, the empty chair side ; now it was ruled out of being, so that he could only grow harder, tougher, more bitter, more callous. He was going to make a splendid soldier.

No love—but bags of promotion !

Sgt. Taylor saw it all now, clear as a splinter of sunshine. Shakily, he started to laugh, so that the man in the next bed stared at him again.

Heck, they should be able to think up some really bizarre missions for a stone deaf man . . .

Brian W. Aldiss



Firing a rifle effectively is a fairly simple procedure, given training. But try using the same weapon in space while confined in a cumbersome space suit ! From a simple action at ground level it becomes virtually an impossibility. Philip High introduces what could be the first and last space battle.

PURSUIT MISSILE

by PHILIP E. HIGH

The amazing aspect of the lost colonies, cut off as they were by the long centuries of the Azvic war, lies not only in their survival but in the fact that most of them established a technology.

It must be remembered that at the outbreak of hostilities none of these colonies were self-supporting and the majority were awaiting machinery and trained technicians.

The crews of the first contact vessels were amazed to find a technical level equal to that of twentieth century Earth. One Colony had in fact surpassed even this high level and made her first tentative steps into space. This was the planet Nerth in the Atsor cluster. Crude, but efficient, hydro-nuclear type vessels were already making regular journeys to the nearer planets upon which bases were already firmly established.

It is interesting to note in passing how—in a culture where origin and starships were a doubted legend—the ancient names and associations still remained. Stranger still, particularly in respect of Nerth, was the closeness with which her brief history had followed that of her home planet. Major wars had already been waged and only a few weeks prior to first contact . . .

From : Pallomaine's HISTORY OF SPACE.

"I don't like it," said Harmel for the tenth time. "I don't like it at all. This sort of business has never been tried out." He tugged angrily at his reddish beard. "The Old Ones, if they ever existed, may have known something about it but as far as we're concerned it's *new*."

Lieutenant Bron, checking the armaments, looked up, frowning. He was a very young, very earnest officer who was as out of his depth as the rest of them but as technical commander dare not admit it.

"We are at war, Cobber Harmel," he said stiffly and, he hoped, with just the correct tinge of authority. "We are at war and it's our business to destroy the enemy wherever he may be found."

"Quite," said Small, the nominal skipper, quickly. "Quite so." He didn't want an argument, he hated arguments, they upset his stomach. After three years in space a man's stomach rebelled too easily. One could be sick and if he were sick the rest of the crew would hate him for a month. It was the way of space; being sick in free fall made everyone hate you, the disgusting globules drifting around in the cramped space of the control room.

Small realised his mind was wandering as a man's mind came to wander once 'thrust' was over. You were so damn long in space with so little to *do* that mind-wandering became a habit.

The Captain looked about the cramped room which was control room, cum wardroom cum everything. Sleeping bunks, which also served as recoil chairs, swung out from the wall, a chart table pulled up from the floor but they called it the control room because the instruments, the space-caller and the radar had somehow been pushed in as well.

Captain Small sighed inwardly, a little shocked to find himself still numb, or dazed—or dare he admit it to himself—untouched by the present crisis. The planet was at war but somehow the realisation lacked meaning and urgency. It was like hearing that a man whose name one knew had died suddenly in the street. One thought: "Poor Smid, or Green," or whatever his name was, "damn sad business," and promptly forgot about it. Yet, down there, back on Nerth, for all he knew, mass devastation was already unleashed, armies marching, cities destroyed, brave men and women being slaughtered wholesale but somehow, up here, it just didn't *register*.

Carefully he tried to gain a sense of proportion, of urgency, but the effort left him dull and unfeeling. He was a trained scientist with a great deal of space experience behind him but he felt like the Master of a paddle-turner who could read the winds and the tides and was fairly useful with charts and a sextant.

'I'm thirty one,' he told himself. 'Suddenly I feel sixty, gnarled and near to retiring, maybe it's the shock.' It was a comforting explanation but Small was too honest to deceive himself, so far it didn't mean a thing. The whole business had a dream-like impossible quality about it which even the adaption of six weeks ago had failed to change.

The *Brisbane* had been orbiting near her parent space station when suddenly she had been pounced on by a fleet of cargo ferries and a great many space-suited figures intent on turning the vessel into a warship.

Lieutenant Bron, newly trained and green as they came, had been thrust upon them without warning.

Small scowled at the Lieutenant's intent back. Yes, green as they came and in six weeks he had managed to be sick eight times.

War! Small tried to find reasons for it. True, there had been strained relations between the Vansers and Stralia for a long time. True, also, there had been much sabre rattling and propaganda but surely mankind had learned sense by now? Perhaps that was why he was indifferent, he just couldn't bring himself to *believe* it.

In a few days, if his navigation was correct, he was going to have a taste of war himself. A feeling of bleakness seemed suddenly to invade his mind. It was not fear, it was a feeling of helplessness which for the first time since hearing the news suddenly alerted him. How the hell were they going to destroy the *Kranus*? For, as far as Nerth was concerned, *man had never fought in space before*.

Kamn, squatting before the radio, put down the earphones and shook his head. "Nothing but static—I hope we got that message right."

He looked at Small and seemed to read his mind. "Will someone please explain what we *do* when we meet the *Kranus*?"

Bron looked up from the rifle he was cleaning. "This vessel has been adapted for offense, Cobber Kamn."

"Yes," said Kamn and sighed. He thought, but did not add, that the adaptations and additional armaments had been

conceived by men whose knowledge of space was limited to text books. They had, apparently, overlooked spatial ballistics completely, remaining intent on the weapons themselves.

He remembered reading in a history book about the first days of flight and the adaptation of those early aircraft to the sudden demands of war. The navigator had been provided with a rifle with which he had optimistically fired at enemy aircraft similarly armed. Of course, time and experience had turned the aircraft into a formidable weapon of war but the first warplane . . .

Kamn stared unseeingly at his radio. This, unless the legendary Old Ones had them, was the first armed spaceship, the very first and her armaments were as laughable and as ineffective as those of the first warplane.

The *Brisbane* had four rifles and an automatic weapon on a tripod with an incredible rate of fire but limited reserves of ammunition. In the minute hold, four small magnetic mines reposed in a packing case labelled MARK IV SPACE GRENADES. In addition, construction gangs under the direction of the newly created Space Ordnance, had installed a launching tube for a target-seeking missile. This weapon now rested in its tube—uncomfortably close to his head—awaiting release. As it was, Kamn was dubious about the first missile ever created to be launched in free fall. He'd prefer to know exactly how the thing worked before Bron pressed the fat black release button. He hoped also that the Lieutenant's sense of duty was restrained by a certain amount of common sense. Not that he had anything against Bron, decent enough man really, apart from the occasions he was sick and, on the whole, doing a good job.

The situation reminded Kamn of past history when Stralia had been threatened by invasion from the sea. Fishercraft had been commandeered, hastily adapted for patrol work and minesweeping duties and unfortunate Lieutenants from Training Reserve placed in technical command.

The skippers of such vessels were usually rugged individualists who resented the Lieutenants' presence and addressed them with the resigned politeness of long suffering martyrs. In time, of course, such vessels had settled down and become efficient, well disciplined units of the fleet but at first . . .

Poor Bron was like that, tossed up here from one of the new space schools, inheriting a civilian crew.

'By the Gods,' thought Kamn with a sense of wonder. 'I'm an officer, a space-sparks or something. I wonder what sort of uniform they'll give me when I get back—if I get back.'

He wondered suddenly how long the Space Force would last. Space vessels, apart from ground-to-orbit ferries, were built in space. How long would the enemy allow Stralia to build vessels in orbits which took them right over their territories or, for that matter, Stralia permit contruction in orbits over hers? A couple of ground-to-space missiles from both sides would end the space stations and everything to go with them. Anything with a fixed orbit was a sitting bird for a G.T.S. missile anyway. After that, what? The Vansers had twelve ships, Stralia fourteen. With orbital construction denied to both sides it looked as if the war in space wouldn't last very long whatever its duration on the ground.

Kamn dragged his mind from his sombre thoughts, looked up and scowled—Harmel again. He supposed in small crews of this kind there had to be one comedian.

Harmel had clumped up the wall in his magnetic boots and was now standing on, or hanging from the ceiling—according to the point of view—and was watching the Lieutenant from above. People did things like that when they were new to space and free fall, Harmel did them because by nature he was irrepressible.

Small looked up. "Get down, you half-wit," he said tiredly. Harmel was a good man when handling a ship but on occasions . . . Small hated wall-walking even for maintenance purposes, it made his stomach queasy.

The *Brisbane* continued on her way. She was a strange looking craft, two spheres, one large and one small joined together by a lot of frail-looking metal lattice. Occasional jets of fire from the smaller sphere which housed the atomic motors spoke of course corrections but otherwise she seemed to drift.

Small spent a great deal of time with the slide rule and charts and occasionally calculated aloud.

"Which way will they come?" Bron asked the question with a certain diffidence. Six weeks in the Captain's company had bred respect if not actual liking for this purely civilian skipper. He was not only a first-class scientist, he was a man of distinct character and quiet directness which Bron found more than a little disconcerting.

Small straightened his shoulders slightly and sighed. "There's only one way they can come—the shortest way. They lack the fuel to take any other route but this one." His blunt finger stabbed at the charts. "We know the day she left Skira, the planet's position at time of departure and her speed in miles per second. We should meet her about here at One plus eight."

"She couldn't slip by?"

"I'm afraid she could." Small sounded untroubled. "I can only estimate to within two hundred miles, our radar is effective up to a hundred and ten; we'd need four ships to do the job properly." He looked at the Lieutenant directly. "By the way, is she armed?"

Bron flushed slightly. "Intelligence is of the opinion—" He met Small's mildly penetrating gaze and coughed awkwardly. "Yes, we think she is."

Small said: "Thank you," in resigned voice. "Let us hope we spot her first, which is unlikely—their radar is better than ours."

Bron nodded stiffly, feeling somehow that the remark was vaguely treasonable and glanced at the chronometer. It was One plus 4, twenty one hundred and sixteen hours, ship time.

At One plus 8, sixteen hundred and twenty five, Kamn, hunched over the radar screen, said: "Skipper, I've got a spot at Red O Five. It's faint but I can make it stick. Say slightly beyond the effective range, round about a hundred and twenty miles."

Despite the awkwardness of movement in free fall, Harmel was in his chair with amazing swiftness.

"Ready when you are, Skipper." The click of harness buckles was audible as he spoke.

Small frowned over Kamn's shoulder, reading the marked degrees at the edge of the screen. "This is going to be a little tricky, we're on a right angle course. We might lose her while we are turning." He nodded briefly. "All right—recoil chairs."

He watched Bron with mild concern lose contact with the metal floor and twist wildly in the air. Some people never got the hang of magnetic boots.

"Your left foot," he said in a detached voice. "Stick it out straight—that's it, you've got it."

Flushed and embarrassed Bron walked down the wall and took his place in his chair.

Small sat in his own without haste and glanced at the dials above his head. "Bring her round to ninety, green, Harmel, please. Think you can hold her on the turn, Kamn?"

Kamn said, doubtfully: "I can do my best, Skipper, but we're at extreme range."

At One plus 8, nineteen hundred and forty three hours, ship time, the *Brisbane* was on a parallel course but forty miles astern of the *Kranus*.

"I suppose you realise, sir," said Small, "that every time we bounce our radar off the *Kranus* we're announcing our presence and our position on her instruments,"

Bron coughed awkwardly. "Yes—yes, I had thought of that."

Above their heads an instrument went *bing*, softly.

"We're on *their* radar now," announced Kamn with a certain glum satisfaction. "It must have been easy, we've been practically knocking on their airlock with a hammer. If they're armed we must be right in the cross-hairs by now." He paused and muttered something inaudible.

"Something wrong, Kamn?" Small was leaning forward slightly, looking at him.

"The screen went funny for a minute, fogged." He glanced up at the instruments. "I wondered if we'd run too close to her tail discharge for a moment, screens usually blank out with radio-active. She wouldn't have thrown an atomic grenade at us, would she?" Then, faintly embarrassed: "I've never heard of an atomic grenade of course, but I thought, maybe—" His voice trailed away.

"Is she still on the screen?"

"Dead centre."

Small nodded. "I shouldn't worry about atomic grenades," he said gently. "Nuclear weapons are far too expensive to throw about without the certainty of hitting the target, probably some simpler explanation."

Bron was frowning at a small black book he had taken from his pocket. "According to the manual, the *Kranus* is faster than us."

Small nodded. "In a straight acceleration test, she can outrun us by four miles a second."

Bron frowned. "She's still forty miles ahead of us, we'll never catch her."

Small suppressed a sigh. God, these space cadets ! “ She’s on the Skira run,” he said in patient voice. “ She has just about enough fuel for course corrections and getting into orbit, certainly not enough to risk blasting away from us.”

Bron coloured, feeling small and rather childish. The things he *didn’t* know about space were becoming a major problem. He remembered the enthusiasm and excitement of training days and some of his recollections made him want to sink through the recoil chair. Good God, he’d even visualised himself shouting : “ Action Stations !”

“ How close do you wish to be, sir ?” Small was looking at him politely as if he had asked the question before which, perhaps, he had.

“ Eh ? Oh—well—well, the pursuit missile is given an effective range of six miles but perhaps for safety we’d better make it two.”

“ Now we *can* knock on their damn airlock,” said Kamn in an audible undertone.

Small frowned at him and then turned to Bron. “ If I might have a quiet word with you, sir, before we close the distance.” He unbuckled his straps and moved to the far wall.

“ It’s about this missile,” he said when Bron joined him. “ I’m not happy about it, not happy at all.” His voice was low but by no means inaudible.

Bron checked a conspiritorial whisper of response—the Captain had evidently mastered the art of private conversation in a confined space.

“ I’m afraid I don’t quite understand,” he answered a little stiffly.

Small forced back a sigh. “ I know it’s a target-seeking missile but what, precisely, does it ‘ home ’ on ?”

Bron cleared his throat. “ The missile is acutely sensitive to a vessel’s drive mechanism—it just can’t miss. I can assure you—” He stopped abruptly. Small’s face had somehow thinned and become vaguely despairing. “ Something wrong ?”

The Captain nodded slowly. “ You appreciate, I hope, that the position of the launching tube in relation to our forward movement is unfortunate ?” He did not wait for a reply. “ In short, the recoil from the missile being released may turn us right over. In which case the missile may leave the launching tube in the opposite direction to the target.”

Bron opened his mouth to speak but Small held up his hand quickly. "I know what you're going to say, 'it's homing mechanism will turn it round.' Very well, but *we* shall be between the missile and its target, can its instruments determine the difference between our drive and theirs?"

Lieutenant Bron opened his mouth and forgot to close it, something cold seemed to be pressing at the back of his neck. True the missile could be destroyed by radar pulses, he had a booklet giving precise details—God, but they'd never have time, would they? The damn thing would be plunging straight at them before Kamn could line things up. He swallowed helplessly, realising that a tiny trickle of sweat was crawling down his temple.

Small was very gentle. "I hope you don't mind me pointing out the hazards but we don't want to go down in history as the first space vessel to be destroyed by its own weapons, do we?"

Bron made a vague sound which might have been agreement but he was not without moral courage. "I guess that leaves us four rifles and a machine gun, doesn't it?"

"Well, there's the space mines—"

The other shook his head. "No, now you've got me thinking, I can see that they wouldn't work either. They're supposed to be released as a pursuit deterrent but 'released' seems too vague to be safe." He straightened and held out his hand suddenly. "I'm honest enough to admit I must depend on you almost entirely."

Small shook the proffered hand warmly, glad that the slight reserve between them had at last been broken down. He liked to feel comfortable and at ease in space without emotional tension of any kind. Bron was a decent lad and obviously not lacking in courage.

"I think we can work things out between us," he said. "And, if I may make the first suggestion, wouldn't it be better if we drew lots for who does what when the trouble starts—"

Harmel glared at the blank strip of paper he had drawn and twisted it angrily in his fingers. "The Gods hate me," he said, bitterly. "Trust my luck to fold up now."

It was One plus 8, twenty three hundred hours, ship time, and the *Brisbane* was now running parallel with the *Kranus* at a distance of approximately two miles.

Bron had checked the rifle they had decided to use and now stood waiting by the airlock looking slightly shocked as Harmel blasphemed his way into a space suit.

"Shut up a minute, I'm checking you." said Small in a mild voice. He bent down and examined a knee-screw carefully. Unlike Bron, he was untroubled by Harmel's protests, the bad language was pure smoke screen and nothing more. Inwardly, he knew, the other would be thinking clearly and coolly as the automatic flood of protest poured from his lips. It was the nature of the man to swear and complain while not really meaning it.

"That's it, open airlock." Kamn crossed over and slid on his earphones, pressing a switch at the same time. "Testing—one—two—three—"

"Receiving you loud and clear."

"Check air bottles."

Harmel glanced upwards at the small, almost indistinguishable dials set above the face plate of his helmet. "Check. Dials register maximum."

Ahead of him the door of the tiny airlock slid open. He moved into it and heard the door slide shut behind him. Almost at once he heard the suit creak as the pressure in the lock began to drop. He glanced upwards again, but there was no red warning light of a suit leak, so far, so good.

"Lock exhausted," said Kamn's voice in his helmet.

"Who cares," said Harmel and pressed the exit button of the outer door.

Before passing outside he unhitched his life line and tied it carefully to one of the many grip-rungs which circled the sphere. Then he stood for a long time almost forcing his mind to orient itself to the visual appearance of space. You had to kid yourself you were looking *up* at the stars. Somehow, if you thought you were looking down, you became giddy and helpless. You had to kid yourself *first*.

After a time he unslung the rifle Bron had given him and climbed to the 'top' of the sphere. It took him a long time to find the *Kranus* and then she was visible only as a black blob among the stars.

He shifted slowly to get a better view, careful to press the magnetic boots firmly to the metal. A sudden movement and you could lose contact. It had happened more than once and, despite the life line, it was a terrifying experience, turning over and over in nothingness, your orientation shot to hell. You could be sick so damned easily and that meant getting back inside in a hurry. Not only was your face plate fouled but there was the added danger of clogged breathing tubes.

"You all right out there?" asked Kamn.

"Mind your own business," said Harmel. "How close are we, Kamn?"

"One point 0 eight miles."

"Out here it looks like a hundred and eight." Harmel brought the rifle to the level of his face plate and examined it carefully. Out here it looked curiously unwieldy and nothing like the light weapon he had handled inside. It was a compact, light alloy weapon with a complicated recoil mechanism and an eight chamber magazine of semi-armour-piercing explosive bullets.

Harmel decided he didn't like the look of it. The squat flared barrel suggested a recoil that no exhaust mechanism could cut out completely and this was the last place he wanted a kick-back.

He stood still for some seconds deciding on a proper position and, after careful thought, pulled himself flat to the surface of the sphere. He grasped a grip-rung with one hand, wedged his foot against another and pulled the rifle against what he hoped was his shoulder. He couldn't feel the butt through his suit, the helmet obscured his vision completely to one side and, for all he knew, the unseen part might be lying in the middle of his back.

Harmel made hopeful adjustments and tried again. He swore. Now that he was in a prone position he couldn't see the *Kranus*. He could raise his head slightly inside the helmet but his vision was limited to a few feet of metal and a narrow band of stars between that and the top of his helmet.

Beginning to sweat slightly, he held the rifle at arms length, re-adjusted his position so that he was on his side at a slight angle and tried again. This time he could see the *Kranus* but sighting, he decided, was out of the question. He'd just have to point the rifle in the general direction of the enemy, press the trigger and hope. He tried and exploded into shouting profanity. Now he couldn't get the metal fingers of his gauntlet between the trigger and the guard.

"What's up?" Kamn sounded worried and faintly shocked.

Harmel told him in blasphemous detail but slowly grew calm. "Maybe I can use one of my belt tools, use it to press the trigger." He fumbled at his waist. "Yes, stand by, this will probably work but, believe me, a hit will be a miracle—ready?"

The explosion was soundless but the repercussions terrifying.

The recoil of the single shot kicked Harmel clean off the ship and out into space. The rifle went twirling and spinning into the darkness like a straw in a hurricane.

Harmel came to the end of the life line with an abrupt jerk, his muscles rigid with tension. For some seconds he did not move, almost afraid to breathe lest the slight movement carry him further away from the ship. Had his life line broken? Trembling he reached out his hand and tugged gently. Thank God, no. His eyes sought the red warning light above his face plate. No leaks either—God, that had been close. He might have ripped his suit or been broken away from the ship completely. Sweating, he began to haul himself back, vaguely aware that he was unharmed but badly shocked.

"You all right, old chap? For God's sake answer." Kamn's voice was raised and genuinely concerned.

"Go to hell," said Harmel in a shaky voice. "Go to hell and leave me alone."

The feeling of 'grip' when his feet touched the *Brisbane* was like awakening from a nightmare. He was home, he was—almost—safe inside.

Then he thought of something else. The rifle! What had happened to the rifle? Dully, conscious of the hopelessness of his search, he peered vaguely about him. Maybe it had snagged on a rung or something. He had to find it, you had to account for lost equipment, hadn't you? Probably there'd be an enquiry or they'd make him pay for it.

To Harmel, in his shocked state, this seemed the last straw. He stood looking helplessly around him almost on the verge of tears and it was at that precise moment he noticed the flashes.

Flashes! The *Kranus*! Machine gun fire? They were fighting, weren't they?—No!—Good God!

"Kamn, are you still there? Listen, the *Kranus* is trying to signal us— No, a definite signal. Stand by, I'll read it off—S.O—S.O.S.!"

"Think it's some sort of trick?" Kamn's voice sounded guarded.

"I don't know. Hang on a minute, it's just struck me—" Harmel strained his eyes in the darkness and felt his inside go suddenly cold. In the excitement of the attack he had failed to notice that there was something definitely wrong with the outline of the enemy vessel. Like the *Brisbane* she was a large ball joined to a smaller ball by a lot of metal lattice, only at the end of the lattice there was no smaller ball. The *Kranus* had blown her drive.

For a brief instant Harmel experienced a feeling of guilt then dismissed it quickly. No explosive bullet could do that amount of damage and he knew enough about atomic drives to realise that something bigger than a bullet had caused a wreck like that. It was a miracle the major sphere had survived. Hadn't Kamn complained of radar difficulties? It—whatever it was—had probably happened then.

Harmel had forgotten his shock, he had even forgotten the war, a ship in distress was a ship in distress and God knew how much air the poor devils had left.

"It's no trick, the poor old girl's blown her drive, we've got to do something fast . . ."

The Captain of the *Kranus* was a thin, dark skinned, smiling man with very white teeth. Once divested of his space-suit he bowed deeply to Captain Small. "On behalf of myself and my crew, my deepest thanks, Captain." He bowed again. "Allow me to introduce myself, I am Captain Abdan." He waved a thin brown hand. "Sten, my radio man and Rodrig who looks after the motors."

He beamed at them all and bowed again. "A wonderful piece of space work, Captain, to get so close. The efforts of your crew with the life-lines was masterly."

Small made uncomfortable return introductions and stopped nervously. "Er—Lieutenant Bron of the Space Force."

Captain Abdan only bowed. "You, too," he observed. "We also, were to take aboard an officer on our return." He beamed. "Is it not wonderful that our leaders settled their differences by negotiation? But for that we might have been at war."

Small's mouth fell open. "I beg your pardon?" he said, stupidly.

The other looked surprised. "Had you not heard? The news was beamed to us by H.F. equipment five days ago."

"We've not been wired for H.F. reception yet," said Kamn, uneasily.

"Then our news is a small return for our rescue." Captain Abdan bowed again. "Yes, the crisis is over and we all, I know rejoice for lasting peace."

Small nodded vigorously. He was wondering how he could quietly dispose of three rifles and a machine gun before Captain Abdan noticed them.

"What happened to your ship?" he enquired quickly.

For the first time the other looked embarrassed. "It was an accident, an over-sight really." Captain Abdan shuffled his magnetic boots gratingly on the floor.

"What sort of accident?" Small's voice was a little sharp.

"Well—" The other spread his hands in an almost pathetic gesture. "I suppose it will do no harm to tell it now, the crisis is over. Also you saved our lives." He met Small's eyes frankly. "Before our departure from Skira we were fitted with a launching tube and a missile. A purely precautionary measure, you understand, in case hostilities broke out before—" He stopped uncertainly.

"We understand," said Small, gently.

"Thank you, Captain. To continue the sad story, some hours ago we received an urgent message to release it—probably for political reasons. Unfortunately, almost immediately after, your radar pulses were recorded by our instruments." He paused and swallowed nervously. "Obviously we had to dispose of it as quickly as possible in case you came back with us for company as ships often do." He swallowed again. "The printed instructions accompanying the missile assured us that it could be destroyed by certain radar pulses, only—"

"Only they didn't work," supplied Small. "The thing turned round and 'homed' on your drive before you had a chance to destroy it."

The other looked at him wide-eyed. "How did you know that?"

Small pointed at the launching tube. "We have one. Fortunately we never got around to using ours and we'd already decided not to." He paused and the funny side of the situation struck him. Two ships without drives, two ships without tails. He fought an hysterical urge to giggle. What was so damn funny? They might have released the missile in anger, it might just have got home. What idiot at the War Office had started the war off his own bat?

As if in answer the call light began to blink on the radio.

"What the hell?" said Kamn. He slipped on the earphones and pressed switches. "We're not even within calling distance." He frowned, listening. "My God, it's the old *Explorer*, they must have kicked the poor old girl out of orbit to come and meet us. This must be important."

There was a long silence while Kamn scribbled busily. Finally he finished and frowned at the results. "Code," he said. "This must be for you, sir."

"Thank you." Bron took the message and fumbled nervously in his pocket for the decoder. The thought struck him suddenly that perhaps the message held dreadful news. Perhaps the war had not been averted or perhaps Captain Abdan had been lying. His fingers hesitated as they touched the instrument, code and decoder were *Top Secret*. Now he had to use both with a Vanser Captain—possibly an enemy—standing half an inch from his shoulder.

Oh, damn, get on with it. He shrugged angrily and began to set the minute lettering on the instrument.

It took a long time. The decoder was designed to fit comfortably in a normal pocket but it was not particularly swift in action.

When, finally, Bron finished he stared at the result, his face slowly going red. "Well, I'll be damned," he said. Then, with fury. "Like hell!"

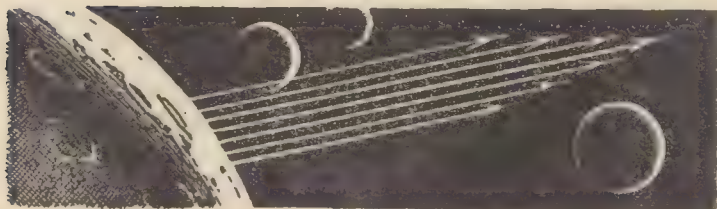
"What's up?" enquired Small, mildly.

"Up!" Bron almost choked. "Read it for yourself." He almost pushed the message into the Captain's hand.

Small smoothed it carefully and began to read, his eyes slowly widening.

CANCEL PREVIOUS ORDERS STOP RED ALERT
INCORRECT STOP CRISIS RESOLVED PEACEFULLY
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RELEASE MISSILE AND DESTROY BY RADAR IMME-
DIATELY STOP MESSAGE ENDS STOP.

Philip E. High





Postmortem

Re 'Soul Searching' Editorial, No. 92.

Dear Mr. Carnell,

Seriously—and I mean seriously—I find myself sharing the deep general concern about the future of the medium. Your latest editorial (No. 92) raised some interesting points on this, and while I still consider myself a comparative newcomer to the genre (at the ripe old age of thirty-one, I shamefacedly confess to a mere four or five years on the habit, which makes me, I suppose, a very late developer) it's been long enough to formulate an opinion on possible explanations.

The initial mistake—the naming—was, I think, a pretty drastic one, and has limited the field in several important ways. I don't think I'm far wrong in blaming it for my lack of interest during what could have been some very fruitful reading years. I always had an interest in what to me was just highly imaginative fiction—Conan Doyle, Wells, Poe, and the rest of the respectable names—but the term science suggested a merely technical type of fiction which had very little appeal to my not really technical mind.

Imaginative is a key word, surely? Isn't that where the basic appeal lies, or rather, shouldn't it be? S-f has been at the pigeon-holing stage for some time now, and the gradual introduction of an awesome number of taboos has led it down the inevitable path towards self-strangulation. The present state of the strictly science fiction magazine has the presumably reasonable editor sitting in the middle of an ever-encroaching circle wondering what the hell to do to keep his readers (he mustn't *experiment*, for God's sake, until sales are well above the low water mark, and who can really blame him?) and the readers eventually getting pretty bored with the formula that they themselves partially decreed and wandering off to find fresh interests for the questioning minds. Divided, I can't help fearing, we fall, and it's only to be expected.

Half-hearted grumbles have been spasmodically raised for quite some time now about the title, but has serious con-

sideration been given in the professional circles to an alternative? For quite a time I fancied future fiction, and to a certain extent still do, but while this covers most categories, it still excludes quite a wide selection of fantasy-type material that I feel should be included. What's really wanted is an all-embracing title like, say—well, all right, so I can't think of one, either, but I think it must be found.

In another recent editorial you commented on the fact that *Science Fantasy* has been regularly represented in the Merril anthologies of late, while *New Worlds* has been restricted to honourable mentions. I think this very significant. The material used in *Science Fantasy* covers a far broader literary area and permits its writers a comparatively unfenced playground in which to indulge their—here it comes again—imagination.

I think, though, that you can afford to be fairly optimistic. With regular contributions coming in from Ballard (and let's hope to Heaven he keeps it up this time) Aldiss, and Kapp, I think you have a pretty solid basis of writers who seem less concerned with mechanics of science—particularly the first two—than the sense of awe that the genuinely speculative mind is capable of assimilating and re-generating on to paper.

As to whether s-f, or whatever we're going to call it, will ever become a truly paying proposition, I have my doubts. Imagination is needed in the reading of it, too, and while the present back-sliding of social intelligence is comparatively slow, acceleration is inevitable. And on which doorstep can we lay a large part of the blame? Science—the mechanical type that is—I'm afraid.

Down, I say, with science fiction before it's too late, block up the pigeon-holes or put pigeons in them, exorcise the taboos, and for the sake of the literature that we love, can't we at least consider making a fresh start?

Robert J. Tilley,
Bristol.

Dear Mr. Carnell,

More science in Science Fiction? Yes, by all means, if it is necessary to the plot and at least able to be intelligently guessed at by the layman reader.

Generally speaking it is the scientist-reader who picks the faults in a story and they only form a small part of the total

readers. Let us not, therefore, make the stories so scientifically authentic that *they* only will be satisfied, leaving the rest of us so puzzled we will eventually forsake our chosen literature !

By all means have stories which make us think but let us not forget that the primary purpose of stories is to entertain and to do this the interest must be held. Held by the author's ability to weave a good plot and not by his scientific dexterity.

By 'more science' I presume it is meant the science which we, the human race, know and can be verified or at least are on the fringes and can be postulated. If so, it's going to rule out an awful lot ! No hyperdrive, therefore, no F.T.L. no galactic scenes, no time travel, no ESP, no nothing !

Using pseudo scientific terms to the best of my meagre ability I've had one s-f story published and hope for more, but what I actually know of factual science doesn't amount to very much and I don't suppose it ever will.

I like a story with science in it, that's why I read them and try to write them, but there's nothing wrong with the use of 'impossible science' if handled by a master of story telling so that it all reads quite feasibly.

Rather than go on I'll try to reply to the questionnaire.

1. No.

2. Yes, me and a million others. To elaborate :—To most of us the sense of wonder has almost gone. It is *not* gone from many of the stories—but from ourselves—familiarity breeds contempt ! Most of us met the early s-f by accident, found it enthralling, knew we had found the form of story we had almost felt a gap for, and so read avidly. Now we are almost sated, have grown up, become discerning and only the cream of writers can ever arouse a brief glimpse of that sense of wonder again. Once a journey to the moon was spell binding now a flicker across the galaxy is commonplace. After all, the first taste of a strange fruit is the most exciting, it'll never be the same again. Unfortunate, but that's how it is.

3. We can't.

4. No, if this means what I think it does.

5. The genre isn't dead, just growing up like us.

The youngsters being introduced to s-f will probably go through the same stages of excitement today though I personally haven't met one. Perhaps during and immediately after the war we were a different generation as to how we thought.

Perhaps I have interpreted Mr. Baxter's statements wrongly

but I'll be more than interested to read the outcome of your editorial in a future magazine.

The very best of good wishes to your magazines,

William Aitken,
Midlothian, Scotland.

Dear John,

At a recent meeting of the Scottish Branch of the B.I.S. we did a bit of soul searching during a discussion on "How Prophetic is Science Fiction?" I raised two points: too few *literary* stories, too much bad English. These things have a connection.

I'll deal with the latter item first. Many writers are neglecting the basic rules of the language. A few examples are: *providing* for *provided*; *on to* written as *onto*—this one crops up so often that the printers might be at fault; misuse of *only*—"I only have one stamp"; *like* sometimes used instead of *as*. There is also a tendency by some writers to avoid writing in sentences.

This inattention is part of the artificial slickness mentioned by John Brunner (*Postmortem*, No. 93). How many writers take the trouble to dip into the treasure chest of our language, one of the richest on the planet?

Reading poetry has helped me with my writing; the poet cannot afford the luxury of the word that conveys anything less than his *exact* meaning; therefore, he is forced to *think* in order to select the word he wants when he wants it. That is why poetry has a sparkle, a vibrancy, an enduring quality that most prose lacks. The writer who reads some poetry will find, through time, that his work will assume a cadence that was missing before.

Good language automatically elevates a story. While it doesn't raise it to the literary level, it helps.

On the question of literary work, such stories must have *depth* and *breadth* of theme. John Brunner's term, huge concepts, sums it up, and I agree that we need to take stock of Man the race. Too much science fiction is incidental, even trivial—most of my own efforts included.

Not all aspects of s-f lend themselves to literary treatment. However, I'd like to see more writers having a shot at such a story. (Obviously, incidental s-f will always be with us). I

tried it with "The Pathfinders," (No. 92). I plead guilty to John Brunner's charges. This story is a hybrid. The original piece started as a doodle, an experiment in astronomical description. It became a story—a poor one. Only some remarks you made about the beginning saved these passages for future use. "The Pathfinders," while it succeeded only in part, was a step towards the literary story. (Incidentally, I do *all* my writing during my 45-minute lunch break).

Let's have more tales like Jim Ballard's "The Waiting Grounds," in which the beauty of language and the immensity of theme take one's breath away, almost literally. Anderson is my favourite author: "We Have Fed Our Sea," has a feeling of poetry about it.

Donald Malcolm,
Paisley, Scotland.

Appreciation

Dear Mr. Carnell,

Well, as the new decade dawns you find yourselves for the first time for many years as the only s-f magazine publishers in Britain, and, as you say, the only outlet for the vast majority of s-f writers. You may not have realised it but this puts you in a position of almost unprecedented power, for it depends entirely upon you what picture British s-f is going to present to the world during the next five years or so (for by that time I think it is inevitable that some rival will be established and ready to compete).

Dare I suggest that you should try a small dose of giving the readers occasional things that they don't want, as John Campbell sometimes did after *ASF* had got established (and often still does).

I read with interest your advice on Plot-Nots and thought it tied up somehow on your earlier mention of the passing of *Nebula*. The fact is that although I had not bought it for so long I regretted the passing of *Nebula* for it gave young inexperienced authors a chance of trying their hand at s-f and writing the very kind of stories which you would perhaps reject. It performed the same function as did *Authentic* in the last couple of years of its life, as a try-out ground for new writers before they passed on to *New Worlds* or *Science Fantasy* (as they all did). Just take a look at some of the stories Bob

Presslie turned in for *Authentic* five years or so back and you will see what I mean.

I realise that it is impracticable to run any of your magazines as a sort of kindergarten, but the fact remains that if the young writers have no opportunity to practise the writing of the horribly obvious kind of story, then they will never graduate to the original kind and we will have no more Arthur Clarkes, Ted Tubbs or Bertram Chandlers (and some of their earlier works were pretty hackneyed, too). This is undoubtedly a threat to the future of British s-f.

I should like to close by congratulating you on "Time Out Of Joint," easily the best serial you have published.

Graham A. Riley,
Liverpool 7

Dear Mr. Carnell,

I would like to take this opportunity to say how much I enjoy reading your three magazines, *New Worlds*, *Science Fantasy*, and *Science Fiction Adventures*. Although a reader of three other s-f magazines, I find the standard of yours far greater and the stories more enjoyable.

New Worlds always contains some interesting short stories and the serials are particularly good, "Man Of Destiny" being one of the best I had read for a long time—although "Count-Down," unfortunately seemed nothing more than a second-rate thriller and greatly disappointed me. James White's stories are always good, especially his "Sector General" series.

Science Fantasy nearly always has a very good short novel or novelette in each issue. Stories such as "Echo In The Skull," "Super City," "The Bones Of Shosun," "Tiger City," were first class and I look forward to more stock stories by their authors and others, such as Arthur C. Clarke.

I have been reading *Science Fiction Adventures* since it first appeared in this country and the standard of the stories is always high. The "Chalice Of Death" trilogy by Calvin M. Knox and "Distant Drum" and "Shadow Of The Sword" by Wynne Whiteford were especially enjoyable.

I look forward to more such stories in all three magazines.

R. E. Jones,
Sutton Coldfield, Warks.

Plot-Nots

Dear Mr. Carnell,

Concerning the editorial of the January issue, numbers 2, 3 and 10 of your 'Plot-Nots' should not have been included. In number 2, admittedly the Solar System inside a molecule idea is old, but it is so very wide and open for so many angles that only a small percentage could ever have been used. Numbers 3 and 10 are the same.

In number 10, though, I violently disagree that crime would be impossible because police are telepaths. Police have to have far more than just knowledge of certain matters which would normally be secret to capture criminals.

Also I cannot understand why you would not use stories that are located in the past, contain . . . mad scientists, flying saucers, or are based upon . . . atomic wars or post-atomic war civilisations. Each idea which you won't use is far, far too wide to drop for the next two or three centuries. Mad scientists, possibly has at first an apparent stupidity. But, in actual fact, said stupidity is vital for the humerous element which is almost always in such stories.

Flying saucers I don't think should ever be dropped. I am neutral to disbeliefs that UFO's even exist, but that is not important, since what authors write is fiction. Flying saucers are just another name for alien spaceships which do not really have to be saucer-shaped, and such ships have been the basis of comparatively good science fiction stories.

H. C. Gilbert,
Manchester, Lancs.

Ridicule ?

Dear Mr. Carnell,

An ardent fan of science fiction I had, in recent times, concluded that with the ever increasing publicity in this field, plus the world-wide acclaim of American and Russian scientific developments in this 'Space Age,' our particular form of reading material had been accepted enough to have outpaced the wisecracks and ridicule at one time considered justified if one admitted to reading such "trash."

I've been sadly disillusioned. I thought it quite safe to include free reference to s-f reading in general conversation.

Not a bit of it ! To my wife, after several years of not understanding my " queer " taste in books, it's still a lot of rubbish. " Men never grow up." Close friends smile patiently, depart hurriedly to make tea or let the dog out—and my colleagues at work grin from ear to ear, sadly shake their heads, and add insult to injury by passing to and fro such inane remarks as " Rockets Away !" and " Who's For Mars ?" All this if I forget myself enough to bring the subject up, but I'm learning fast.

Regretfully, it seems that we in the s-f world are on our own, even today. Films, TV, and Jeff Hawke have probably helped to sway no more than a token few to our ranks, but to the rest we are obviously no more or less than a *right bunch of Charlies* !

Richard J. Anderson,
Hayes, Middlesex.

On Herpatology

Dear Mr. Carnell,

My hobbies sometimes clash with things in your stories but otherwise I enjoy most of them. I like *Science Fantasy* better than *New Worlds* on the whole. " City of the Tiger " annoyed me at first as it would, of course, be impossible to starve or torture a dragon into dancing, however, when I discovered it was a fantasy world I made a mental apology to the author as I suppose most people would think you could treat a dragon like a medieval dancing bear. Incidentally it wouldn't eat unconscious people either.

The otherwise interesting story you had about a dinosaur some time back (" Trouble With Emily " *New Worlds* 77) was ruined for me by the knowledge that you could not possibly get it to play. I have not bothered to explain the above in this letter as I can go on and on about my hobbies, but if anyone does want to know why, I can explain. It always surprises me to discover how little the average person, however intelligent, knows about the most successful form of land vertebrate. In fact if one makes the above statement there is usually an astonished protest in defence of mammals, most people having no ideas beyond Darwin's that the more recent the more successful. I always ask them which they consider the more successful, the recent forms of vegetation or the bracken which chokes them out and is one of the oldest. I

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can, of course, produce a much better defence than that but it is usually enough for people who are not really interested.

Returning to reptiles for a minute, I have been astonished to read lately of radiation theories for the disappearance of the dinosaurs. This seems ludicrous to me as we still have long-lived reptiles today that were contemporaries of the dinosaurs; tortoises, etc. Like most herpetologists I took it for granted that it simply grew too cold to hatch the eggs of the larger slow hatching species. Just like it is too cold in England to hatch the eggs of tortoises although the adults could live here wild without trouble. Hatching times on reptilian eggs and gestation periods on mammals can be roughly compared. Look up the gestation period of an elephant and then how a dinosaur egg could hatch in an approaching ice age. The adults would simply live out their long lives, like the tortoises mentioned above and there would be no young to replace them.

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